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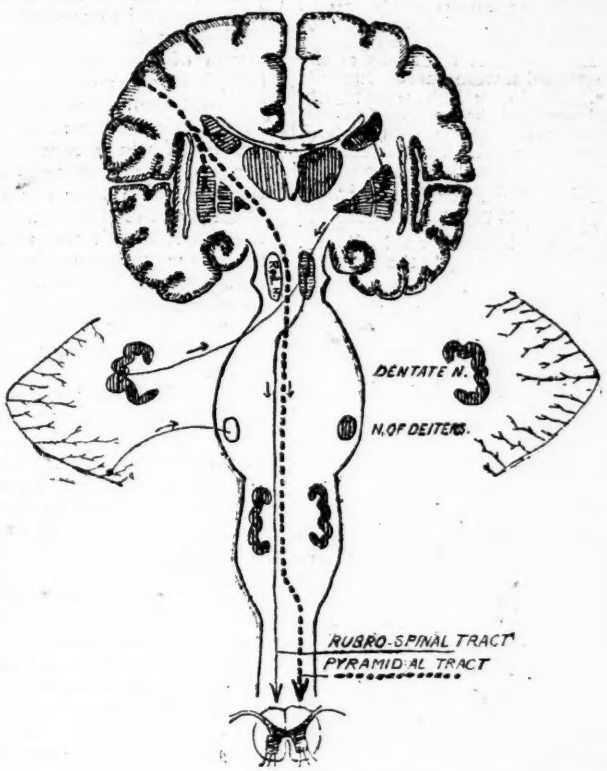
A Clinical Lecture
ON
MUSCLE-TONUS, TONIC RIGIDITY, AND TONIC FITS.

BY
SIR JAMES PURVES STEWART, K.C.M.G., C.B.,
SENIOR PHYSICIAN TO THE WESTMINSTER HOSPITAL.

ORDINARILY our voluntary muscles, even at rest, are in a state of slight tonus, a sort of braced-up condition. This muscle-tonus is a reflex affair—that is, it is dependent, primarily, upon the integrity of the spinal reflex arc. The reflex arc, as we all know, consists of an afferent limb, made up of (1) the sensory nerve, leading up to the posterior spinal root, then (2) a short intermediate neurone within the grey matter of the spinal cord, and, lastly, (3) an efferent limb, consisting, in series, of the anterior cornual cell, the anterior nerve root, the motor nerve and the muscle.

Diminished Muscle-Tonus: Hypotonia.

A lesion interrupting any part of this spinal reflex arc will cause, among other phenomena, loss of muscle-tonus. If the lesion be in the sensory or afferent limb—for example, in the posterior spinal root—it is often associated with sensory loss in the corresponding root-area; if it is the efferent or motor limb which is interrupted, it is associated with muscular weakness and atrophy. A good example of loss of muscle-tonus from lesion of the posterior roots is the muscular hypotonia of tabes, which is sometimes so extreme that the patient's limbs can be placed in all sorts of unusual postures. An illustration of loss of muscle-tonus from a lesion of the motor part of the reflex arc is seen in paralysis of any motor nerve—for example, the posterior interosseous branch of the musculo-spiral, with its characteristic flaccid drop-wrist.



Increased Muscle-Tonus: Rigidity.

The opposite condition of excessive reflex activity with increased muscle-tonus may arise from irritative conditions in the reflex arc. Sometimes the irritation is in the afferent limb of the arc, as can be easily observed in the localized rigidity of the muscles around a painful or inflamed joint or the localized abdominal rigidity of an inflamed appendix. It may also result from irritative conditions of the anterior cornual cells—for example, in poisoning by strychnine or by the toxin of tetanus, although in tetanus, as we shall see later, other factors are probably concerned.

Pyramidal and Extra-Pyramidal Tracts Influencing Muscle-Tonus.

All the movements of our voluntary muscles are executed through the anterior cornual cells of the spinal cord. These receive two different varieties of motor impulses from the brain. The first class of impulses are voluntary motor impulses, from the pre-Rolandic cortex, travelling down the brain-stem along the pyramidal tracts. The second class are involuntary non-pyramidal impulses, from subcortical motor centres (such as the corpora striata, the red nuclei, the accessory vestibular nuclei of Deiters, etc.) travelling along subcortico-spinal tracts (such as the rubro-spinal in the lateral columns, the vestibulo-spinal in the anterior columns, etc.). The accompanying diagram, by Professor Stopford, of Manchester, shows what I mean. The subcortical ganglia are again influenced or reinforced by the intracerebellar nuclei (constituting cerebello-rubro-spinal and cerebello-vestibulo-spinal paths, and so on). These two sets of impulses, cortical and subcortical, pyramidal and extra-pyramidal, acting on the motor cells of the spinal cord, influence the motor activity of the anterior cornual cells, the pyramidal impulses producing voluntary movements, the non-pyramidal impulses producing automatic acts. But, in addition, they have a regulating effect upon muscle-tonus and posture which is mutually antagonistic, so that, if both sets of impulses be knocked out, the normal muscular tonus is diminished and the affected muscles become not only paralysed, but also flaccid. If, however, either the pyramidal impulses, on the one hand, or the subcortical impulses, on the other, are knocked out alone, the other partner is left unopposed, and the affected muscles become hypertonic and rigid, producing so-called spasticity.

The spasticity due to pure pyramidal disease—for example, in ordinary hemiplegia—is produced by the unopposed non-pyramidal motor tracts. These act on the anterior cornual cells, and produce hypertonus in the affected muscles, which, although paralysed for voluntary movements, nevertheless can still be influenced by the subcortical centres in the corpus striatum, red nucleus, etc., so that certain automatic movements can be performed in the paralysed limb or limbs.

On the other hand, in the spasticity due to pure extra-pyramidal disease (for example, in paralysis agitans, in progressive lenticular degeneration, etc.) automatic movements, such as those of swinging the arm in walking, blinking the eyelids, certain emotional movements of the face, etc., are diminished or lost, and yet the patient, owing to integrity of his pyramidal tracts, can still perform all ordinary voluntary movements with his spastic muscles.

When both sets of motor impulses, pyramidal and non-pyramidal, are cut off, as in a total transverse lesion of the spinal cord (say from a fracture-dislocation or from a bullet wound), the muscles below the level of the lesion at once become paralysed and we have a flaccid paraplegia—that is, one in which the paralysed muscles are devoid of muscle-tonus. This flaccid stage lasts from one to three weeks. If, however, the spinal cord lesion is incomplete, so that some fibres, whether pyramidal or non-pyramidal, still reach down to the anterior cornual cells below the level of the lesion, we then find that muscle tonus is preserved and increased from the start—that is, that the paraplegia is spastic in type. The transient loss of deep reflexes in a total transverse lesion compared with their exaggeration from the very start in an incomplete transverse lesion, is another point of interest, but we shall not discuss it on this particular occasion.

Decerebrate Rigidity.

Let us now consider what happens with a still higher transverse lesion of the brain-stem, away above the spinal cord and medulla altogether, at a level which cuts off the cerebral hemispheres, together with their voluntary motor impulses, but leaves intact the great subcortical mechanisms of the red nuclei and vestibular nuclei, also leaving these ganglia free to be influenced by the undamaged cerebellum. When this is done experimentally

in animals, by transection through the brain-stem in the mesencephalon, the result is to produce so-called "decerebrate rigidity" in which the animal's limbs, both upper and lower, are rigidly extended, whilst the neck and whole spinal column, right down to the tail, are tonically hyperextended with retraction of the head. We note particularly that this lesion is a purely destructive or "negative" lesion.

In rare cases in human patients we may observe a fairly complete reproduction of acute decerebrate rigidity from unopposed activity of the subcortical motor centres. The following is an example:

In November, 1903, F. G., a man of 40, with albuminuria and arterio-sclerosis, had an attack of sudden right-sided hemiplegia of the face, arm and leg, with flaccidity of the paralysed limbs and unconsciousness. After an hour he recovered consciousness and was able to recognize his surroundings and to answer "Yes" and "No" to questions.

Three hours later he again suddenly became comatose with an entirely different group of symptoms. On top of the pre-existing flaccid right hemiplegia there appeared strong bilateral tonic spasm of the trunk, arms, and legs. The upper limbs were rigidly adducted at the shoulders, extended at the elbows, and hyperpronated at the forearms, so that the backs of the hands faced each other. The thumbs were turned inwards within the loosely flexed fingers. The lower limbs were rigidly extended at hips, knees and ankles, whilst there were occasional sharp sudden symmetrical dorsiflexion movements of both ankles. The spinal muscles were also rigid. The fingers and toes were flaccid. The upper limbs occasionally became flaccid for a few minutes, but the lower limbs remained rigid to the end. The pupils were small and inactive to light. The breathing was stertorous, with flapping of the right cheek. The knee-jerks were exaggerated and there was bilateral ankle clonus. The plantar reflexes could not be elicited owing to the frequent tonic spasms of the ankles.

The rigidity of the lower limbs and trunk persisted until death, which occurred four and a half hours from the onset of the original hemiplegic attack. The temperature ran up to 102° at the end. The pupils became widely dilated, the left being larger than the right; both were oval in outline, the left with its long axis horizontal, the right with long axis almost vertical. The pulse was 186 at the end.

At the autopsy the left lateral ventricle was distended with a large blood clot, and the left corpus striatum was ploughed up by haemorrhage. The other ventricles of the brain were normal.

Decerebrate rigidity in man is the result of a destructive lesion, usually a haemorrhage, in the mid-brain. This haemorrhage often spreads at the same time into the cerebral ventricles. It has been suggested that it is the intraventricular site of the haemorrhage which is the cause of the decerebrate rigidity, but I have repeatedly observed cases of extensive intraventricular haemorrhage in which there has been no rigidity whatever. It therefore seems to me probable that some other factor, such as oedema of the brain-stem, must be the decisive one in cutting off the cerebral pyramidal impulses and leaving the subcortical centres uncontrolled.

Acute decerebrate rigidity is usually a terminal phenomenon in a dying patient; but not always, as the following example will show:

Only last week I saw an old gentleman of 85 who had had two attacks of left-sided hemiplegia—the first at the age of 73, the second at 83—apparently due to cerebral thrombosis. Two months ago he had a couple of attacks of sudden unconsciousness and stertor, with half an hour's interval between them. In both of these he showed typical decerebrate rigidity, with tonic extension of the lower limbs at all joints, the upper limbs being tonically extended at the elbows and wrists, the metacarpo-phalangeal joints rigidly semi-flexed and the inter-phalangeal joints rigidly extended. The coma lasted forty minutes in the first attack and twenty minutes in the second. The pulse ran up to 120 during each attack. Throughout the attack he made champing movements of the jaws. For a few minutes after recovering consciousness he was mentally confused, but soon became bright and alert again, with no evidence of aggravation of his previous slight hemiplegia. He then went two months without further attacks, and again had another couple, of similar character but milder in degree. From these again he has made an excellent recovery.

Incomplete Decerebrate Rigidity.

Short of complete decerebrate rigidity, we sometimes meet with phenomena of chronic incomplete decerebrate rigidity—for example, in cases of cerebral diplegia, and, to a less extent, in ordinary hemiplegia.

In a decerebrate animal with tonically extended limbs, if we turn its head passively to one side or to the other, there occurs, after a short interval, a curious exaggeration of extension in the upper limb towards which the animal's face is turned (so-called facial limb), together with a diminution of the extension of the upper limb towards which its occiput is turned (occipital limb). Similarly, in certain cases of cerebral diplegia in which the subcortical centres are released from control, we can elicit so-called "conjugate automatic movements," so that, if the patient's head be turned, say, to the right, we observe that the left upper limb slowly becomes tonically flexed, whilst the right becomes extended. This phenomenon takes about a minute to reach its maximum. If we now turn the head passively to the opposite side, the attitude of the upper limbs becomes reversed.

Rigidity in Pyramidal Lesions.

Similar phenomena of decerebrate rigidity can sometimes be demonstrated in chronic hemiplegia, being limited, of course, to the hemiplegic limbs. Thus we may observe involuntary flexion of the hemiplegic upper limb when the face is turned away from the hemiplegic side, and involuntary extension of the hemiplegic limb when the face is turned towards the hemiplegic side.

Many healthy people make automatic extension movements of the upper limbs during the act of yawning (which of course is a subcortical phenomenon). By the ancients such movements were termed "pandiculation." These movements often remain well marked in the paralysed limbs in a case of severe chronic hemiplegia when the patient yawns or is tickled. The transient tonic extension which then occurs in the previously flexed rigid fingers, or the elevation of the paralysed arm, may delude the patient with the vain hope that he is beginning to recover voluntary power. But, unfortunately, these movements are not a hopeful sign. On the contrary, being due to uncontrolled activity of the subcortico-spinal motor tracts, the more profound the lesion of the pyramidal tract has been, the more marked is the pandiculation likely to be.

The well-known muscular rigidity with which we are all familiar as forming part of the classical syndrome of a pyramidal or upper motor neurone lesion, is easily recognised as due to uncontrolled activity of the subcortico-spinal motor tracts. In such a lesion the posture of the spastic upper limb in cerebral hemiplegia or monoplegia tends to be one of flexion of the elbow with pronation of the forearm and flexion of the wrist and fingers. The posture of the spastic lower limb is usually one of extension of the hip and knee, with plantar flexion and inversion of the ankle and slight dorsiflexion of the toes. These postures of the limbs occur in pure pyramidal lesions—for example, in ordinary hemiplegia of cerebral origin or in pure lateral sclerosis of the spinal cord with the "extended" type of paraplegia.

Rigidity in Extra-Pyramidal Lesions.

Muscular rigidity also occurs in pure extra-pyramidal disease from unopposed action of the pyramidal tracts. This is typically seen in paralysis agitans, in which rigidity of the face, trunk and limbs (generally beginning unilaterally) invariably accompanies the tremor and usually precedes it. In fact, severe rigidity may be present for months before tremor supervenes, or tremor may even remain absent, when we have the so-called "paralysis agitans sine agitatione."

On the other hand, if the pyramidal and the extra-pyramidal tracts are both affected together, as for example in a diffuse spinal cord lesion, we no longer find the decerebrate extended posture of the lower limbs; on the contrary, owing to loss of tonus in the paralysed extensor muscles, there is flexion of the hip and knee with dorsiflexion of the ankle, so that the limb as a whole is drawn up or shortened—the so-called flexed type of paraplegia.

Cerebellum and Muscle-Tonus.

Let us now turn to the cerebellum and its influence upon muscle-tonus. The fundamental function of the cerebellum is that of muscular synergia or co-ordination. For the efficient performance of co-ordinated muscular acts a certain degree of muscle-tonus is necessary. The cerebellar cortex is mainly a receiving platform for afferent, cerebello-petal impulses, for example, those of equilibration from the semicircular canals, also the proprioceptive impulses from muscles and joints, impulses which normally do not rise to consciousness, although when they are disordered acute discomfort is at once felt. The motor

centres of the cerebellum are located mainly in the intra-cerebellar nuclei, including the dentate, roof, and emboliform nuclei. These nuclei exercise their influence upon the anterior cornua and the voluntary muscles, not directly, since there are no direct, efferent, cerebello-spinal paths leading down to the spinal cord. The action of the cerebellum on the brain-stem is an indirect one, thrown in, as it were, from a projecting branch. It is exercised mainly upon the red nuclei and upon the accessory vestibular nuclei of Deiters, from which, as we have seen (see figure), descending rubro-spinal and vestibulo-spinal tracts lead down into the main stem of the spinal cord to influence the activity of the anterior cornual cells. Each half of the cerebellum is connected with the contralateral red nucleus and with the ipsilateral nucleus of Deiters—that is, with the ipsilateral side of the spinal cord, since the rubro-spinal tract decussates before reaching the spinal cord, whilst the vestibulo-spinal tract runs down uncrossed in the ipsilateral side of the cord.

Destructive or Negative Cerebellar Lesions.

If the cerebellum be experimentally destroyed the tonus of the voluntary muscles is at once diminished. In unilateral cerebellar lesions this loss of tonus is confined to the ipsilateral limbs and trunk. The affection of the trunk muscles in unilateral lesions of the cerebellum is dramatically shown by the fact that the tonic action of the contralateral muscles being now unopposed, the animal rotates around its own long axis in a screw-like fashion. In a case of destruction of the right half of the cerebellum this rotation is in the direction of screwing in a screw; in left-sided lesions the direction is reversed (the animal's head representing the head of the screw).

Destruction of the anterior part of the middle lobe, or vermis, of the cerebellum affects the tonus of spinal muscles on both sides, so that in destruction of the front part of the vermis the animal falls forwards, whilst if the posterior part of the vermis be removed the animal falls backwards.

In human patients sudden destructive or negative lesions of the cerebellum are comparatively uncommon, but typical examples are occasionally met with in war. In unilateral wounds of the cerebellum the ataxia of the limbs is on the same side as the lesion. It is accompanied by hypotonia of the muscles on the affected side, so that the limb "flops about" and can be placed passively in abnormal postures. This hypotonia, however, tends to pass off after a week or two. In bilateral wounds of the cerebellum not only the limbs but the spinal and neck muscles become specially hypotonic, so that the patient cannot stand or even sit up unless he is supported. After a short time, if the lesion be stationary, compensation occurs, and the hypotonia rapidly subsides.

Irritative or Positive Cerebellar Lesions.

Lastly, we have to consider the effects of irritative or "positive" lesions of the cerebellum. These will increase muscular tonus and produce tonic rigidity of the affected parts. The mechanism through which this is effected is probably by means of intra-cerebellar nuclei, not the cerebellar cortex. Stimulation of the upper part of the dentate nucleus has been shown by Horsley and Clarke to produce deviation of the head and eyes towards the ipsilateral side. Stimulation of the basal portion of the dentate nucleus, together with the upper portion of the other adjacent intra-cerebellar nuclei on the same side, produces tonic flexion of the ipsilateral elbow, whilst stimulation of the paracerebellar nuclei alone, without the dentate nucleus, produces tonic extension of both legs, closely resembling the posture of "decerebrate rigidity."

Tonic or Cerebellar Fits.

In rare cases we may come across rigidity in man from irritative cerebellar lesions, producing a variety of "tonic fits." In these so-called cerebellar fits the posture of the lower limbs in extension is what we have already described, but that of the upper limbs is not quite the same as in ordinary decerebrate rigidity from a negative or destructive lesion of the brain-stem above the red nuclei. In irritative cerebellar lesions the typical hyperpronation of the fore-arms is often absent.

Let me relate to you an example of these "cerebellar fits" which some of you have witnessed in the wards.

R. N., a little boy of 4 years, was healthy until the age of 3½, when he began to have "fits." At first about two used to occur in every twenty-four hours, one during sleep and another on waking in the morning, but after a couple of months they rapidly increased in frequency, and by the time he came under observation they were occurring about every half-hour or so, day and night. Together with the increase in the fits, the child's intelligence rapidly deteriorated. Previously bright, active and lively, he became dull, apathetic, and neglectful of the sphincters; his speech, previously fluent, became less distinct, so that he intermingled inarticulate noises with his almost monosyllabic, indistinctly articulated words. He occasionally placed his right hand on the side of his head, as if in pain. There was no vomiting. A week before I first saw him he became unsteady in his gait and occasionally fell when walking.

When first examined, on May 1st, 1920, he was mentally dull, but he understood and executed verbal requests to shut his eyes, put out his tongue, etc. He named accurately objects shown to him, such as a watch, penny, and scissors, but articulated his words very indistinctly. The optic discs and fundi were normal. The pupils were equal and normal in reaction. There was a fine rotatory nystagmus, only noticeable during ophthalmoscopy. The cranial nerves were otherwise normal. There was no cutaneous anaesthesia or analgesia, and all the limbs were powerful. The gait was extremely unsteady and reeling, so that he frequently fell, but not constantly in any special direction. The knee-jerks were brisk and equal; the ankle-jerks were absent. The plantar reflexes were flexor in type, and the abdominal reflexes were brisk. Kernig's sign was negative.

During examination he had one of his fits, of which the following is a detailed description. The child suddenly became momentarily unconscious with cyanosis of the lips and face, dilatation of the pupils and turning of the eyes slightly to the right side, with transient flickering of the eyelids. Meanwhile all his limbs became rigid. The upper limbs became tonically extended at the elbows and rigidly flexed at the wrists and metacarpo-phalangeal joints; the lower limbs were rigidly extended at the hips, knees and ankles, and inverted at the ankles. After lasting about twenty seconds the elbows became semiflexed and the fingers twitched slightly for about ten seconds, the lower limbs remaining rigidly extended as before. He then gave a deep sigh and recovered consciousness. There was no biting of the tongue nor affection of sphincters during the attack.

The patient was kept under observation in Westminster Hospital for two months, during which he had numerous daily attacks similar to the above, numbering from seven to twelve in the daytime and four to six at nights during sleep. At the onset of the fits the eyes were turned sometimes to the right side, sometimes to the left. After an attack the child was not stuporous but seemed wide-awake, and went on playing with his toys.

Radiograms of the skull showed no abnormality, and the optic discs remained normal. Bromide medication had no apparent effect on the frequency of the fits.

In view of the persistence of these cerebellar attacks I asked my colleague, Mr. Spencer, to do a decompressive operation. Accordingly, on July 23rd and 27th a two-stage operation was carried out, in which both cerebellar hemispheres were widely exposed, the straight sinus between them being divided and the dura freely opened. The cerebellum bulged markedly, especially its right hemisphere, but no tumour was seen or felt in any accessible part of the cerebellum. The wound was closed and healed uneventfully, but the flap remained bulging.

During the early half of August, following the operation, the fits continued for a time, but with much diminished frequency. In the latter half of August only four attacks occurred, and from August 30th onwards they ceased altogether.

When re-examined on October 26th, 1920, and again on January 4th, 1921, he was bright and intelligent, with normal speech and articulation. The optic discs and cranial nerves were normal. He was free from nystagmus. There was no weakness or ataxia of the limbs, and he walked and ran about like other children, but was said to be somewhat excitable and impetuous in temper. The operation flap bulged as before.

I may also remind you that many years ago Hughlings Jackson[1] regarded the phenomena of tetanic convulsions, with their tonic spasm of the face (risus sardonicus), jaws, neck, trunk and limbs, as a variety of cerebellar fit. It is probable, however, that in tetanus the mid-brain nuclei and the anterior cornual cells are also implicated in the irritative process.

Another point of interest is raised by the head retraction and spinal rigidity of basal meningitis. Whether this is also to be regarded as a variety of cerebellar irritation is well worth consideration.

Time does not permit of our attempting any adequate discussion of other incomplete varieties of tonic fits. But those of you who are interested in the matter will find many suggestive points in a recent paper by Dr. Kinnier Wilson,[2] where the subject is discussed in greater detail.

REFERENCES.

[1] *Brain*, vol. xxix, 1906, p. 425. [2] Ibid, vol. xliii, 1920, p. 220.

DIATHERMY IN DISEASES OF THE THROAT AND NOSE.*

BY

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SURGICAL DIATHERMY—sometimes called the cold cautery—consists in coagulation of the tissues by heat generated in the tissues themselves by the passage of a high frequency current of considerable strength. Up till comparatively recently, high frequency currents were not used in surgery, only minute currents of a few milliampères being used for the destruction of small naevi, removal of superfluous hairs, etc. In diathermy, currents running up to 1 to 2 ampères are often used in throat operations.

The first operations by this method in this country were performed by Professor Nagelschmidt of Berlin in Mr. Harmer's clinic at St. Bartholomew's in 1910. He removed a large malignant growth of the soft palate, an inoperable naevus of the tongue, and enlarged tonsils. Mr. Harmer became the pioneer of this treatment in England, and since he showed his first case at the Laryngological Section of the Royal Society of Medicine (a case of inoperable cancer of the fauces) a great number of throat surgeons throughout the country have taken up this way of operating, and have recorded very satisfactory results. Although greatly interested after seeing Mr. Harmer operate on several cases, the war prevented my doing any cases till this year, and I have to thank the surgical staff of the Royal Victoria Infirmary, Newcastle-on-Tyne, for allowing me to operate on some of their cases.

In the following description of the method of using diathermy I have thought principally of operations for malignant disease of the mouth and throat; but in all essentials the method is the same for any growth. Various ends for the active electrode are used, and various methods may be used in dealing with the growth according to its size and situation (it may be removed or coagulated *in situ*), and different strengths of the current are needed; 300 to 400 milliampères may be sufficient when an angioma has to be coagulated, and 2 ampères are required when dealing with a large malignant growth.

Prior to operations on the mouth and throat the mouth must be got into as healthy a condition as possible, and septic and decayed teeth attended to. At the time of operation the growth should be painted with iodine. A large negative electrode, thickly padded with cloths thoroughly wetted with saline, is placed on the chest, back, or thigh of the patient, and it is important to have this electrode lying evenly and in close contact at all points, otherwise burning may occur. I use three towels as the pad, and, if the operation is long, inspect the place to which they are applied, so that any signs of burning or scalding may be detected at once. The growth is dried and a small active electrode placed on it. The current is switched on and gradually increased until of sufficient strength, and it is then kept at this strength in the following applications. The result of passing a large current through this small electrode is that great heat is generated in the tissues below the electrode. They turn white and bubbles appear, and if the current is allowed to flow sparks begin to leap from the electrode. The application should not be long enough to allow these sparks to appear, and the current should always be switched off before the electrode is removed from the growth, as, if this is not done, sparks fly when it is taken off, and surrounding tissues are injured. The coagulation extends to a considerable depth, varying according to the strength of current and length of application. The whole growth is gone over in this way until it is coagulated *in situ*, and, should it be necessary to coagulate more deeply, some of the slough may be gently scraped away, and the electrode again applied. The tissues become intensely hot after one or two applications, and it is advisable to wait a short time to let them cool, or unnecessary damage may be done to surrounding parts.

As the heat coagulates the tissues it also sterilizes them, so that a large, deep, sterile slough remains. There is no bleeding during the operation, as blood vessels and lymphatics are sealed. This is a matter of considerable importance, particularly in malignant growth, as these channels of septic absorption and dissemination of growth are left open in all cutting operations, and in cutting operations there is always a risk of implanting malignant cells in healthy tissues. Some of the slough may be gently scraped away to hasten its separation, but it should never be removed to such a depth that there is any risk of haemorrhage, nor should any except quite loose pieces be removed, as it is being thrown off during the process of healing. There is often, after the operation, a considerable outpouring of lymph and oedema in the surrounding tissues. Cases have been recorded where tracheotomy has been required, and in all operations in the neighbourhood of the larynx this should be done as a preliminary.

The temperature may be raised for the first two days, but rarely reaches 100°, and generally subsides in forty-eight hours, when in many cases the patient may get up, even after extensive operations. There is soreness in the operation area, but the pain is less than in cutting operations or where a cautery has been used, and a patient whose soft palate and fauces I operated on was eating solid food on the third day. The resulting slough looks rather alarming, and makes one think of secondary haemorrhage, septic absorption, and septic pneumonia. Secondary haemorrhage is a danger when working near large vessels, but smaller vessels are closed by coagulation. Septic absorption is less than in cutting operations, for the reasons given above, and septic pneumonia does not occur more often than when the knife is used, and many say less often. I have had no cases up to the present. As the slough separates a healthy granulating surface is left, which rapidly becomes covered with epithelium, and in many cases there is little formation of fibrous tissue, so that a soft pliable scar results.

I wish to speak mainly of the use of this method in malignant disease, so I will only mention briefly some other conditions in which it has proved valuable.

Naevi and cavernous angiomata, situated on the lip, cheek, tongue, etc., have been dealt with very satisfactorily. They can be coagulated piecemeal when large and otherwise inoperable, and when they affect the lip or cheek they can be attacked from within the mouth so that no scarring results.

Tonsils.—In a certain number of cases the contraindications to removal are so strong that, although the tonsils need to be enucleated, they are not operated on, or only with much misgiving and hesitation. Such cases can be dealt with entirely satisfactorily.

Lupus.—Nasal lupus, as we all know, is one of the most intractable conditions. Scraping, cautery, ionization, *x* rays, local applications of drugs are all tried, often with little effect, and one works on with these cases for months. I have lately been treating by diathermy a few cases sent me by Dr. Bolam and Dr. Thompson. It is too early to make any definite statement as to cure in these cases, but Dr. Thompson, who has been watching them, agrees with me that they have made greater improvement in a shorter time than they would have done by other methods. (Nagelschmidt said he could do more in two or three applications than he had previously done with 600 to 700 hours' exposure to Finsen rays.) All have been having *x*-ray treatment for some months. One patient, in whom both vestibules, the septum and the inferior turbinates were involved, has had four applications. The ulcerated surface is healed and, at present, no signs of growth can be seen. Another very similar case now shows only a small healing patch on the inside of the ala. The applications are very easy to carry out. A fortnight elapses between each treatment, which only takes a minute or two, and is practically painless, as cocaine is previously employed.

Nasal synechiae, nasopharyngeal fibromas, and *rodent ulcers* have also done well under this treatment.

Turning to malignant growths of the mouth, fauces, etc., it is, of course, impossible in any case to make a definite prognosis. A small growth easily removed may rapidly recur, while in another case, where operation appears almost hopeless, the patient may remain free from recurrence, or it may only reappear after a long time, during which the patient has been in good health. One can only say that a slow growth, in which there is no involvement of the glands, occurring in an elderly person, offers the best prognosis; but even in such a case one at times finds a rapid recurrence, and the recurrence is often of a more malignant nature than the primary growth.

We may divide malignant growths into (*a*) those which can be operated on by the knife; (*b*) those which cannot be operated on by the knife. Many of the former cases can be safely and easily dealt with in the ordinary way, but in others operation entails severe shock and risk, both at the time of operation and subsequently. I do not wish to say that all cases should be operated on by diathermy,

* A paper read before the North of England Branch of the British Medical Association.

but many now operated on by cutting operations would be dealt with equally well, if not better, so far as the removal of the growth is concerned, and with much greater safety and comfort to the patient, were diathermy used. It is often very difficult indeed to cut sufficiently wide of a growth involving the floor of the mouth or the posterior half of the tongue, but comparatively easy to coagulate. Growths of the fauces, soft palate or pharynx involve severe operations which can be done with much greater ease, safety, and rapidity by diathermy. Growths in the aryteno-epiglottidean region must also be included. In many cases coagulation and cutting can be combined. I removed half a tongue in this way with no haemorrhage, and more widely than if knife and scissors alone had been employed. The lingual artery was tied to minimize the risk of secondary haemorrhage, but even then, had cutting alone been employed, there would have been free bleeding.

Passing to the cases which are inoperable by cutting operations, they may be divided into: (1) Those which can be operated on by diathermy; (2) those which are inoperable. Of the former group, some are attacked with the hope that recurrence will not take place for a long time, and others to relieve symptoms. Many growths are so situated that they rapidly pass beyond the range of the knife, and many patients are not seen till this stage is reached: growths of the tongue in its posterior part, fauces and pharynx are examples. Sprays, etc., are used to keep the growth clean, morphine to ease the pain; but the patient goes downhill steadily, suffering great pain and discomfort, and death is a relief to him and his friends. There are now numbers of such cases recorded who have been operated on by diathermy and have lived in comfort for a considerable time without recurrence; when recurrences have taken place, they have been treated again and life prolonged. I have such a case to show this afternoon. He had an inoperable growth of soft palate, uvula and left fauces in April, was treated by diathermy on May 6th, 1920, and there is no sign of recurrence at present. There are other cases in which life has not been prolonged to any extent, but where symptoms have been greatly relieved, and they have died a much less painful death. One of the things which everybody who has used diathermy has noticed is the great relief from, or modification of, pain that often occurs, even in cases in which the whole growth cannot be removed. Massive ulcerating growths causing dysphagia and dyspnoea may be treated, giving the patient relief from these conditions.

Diathermy is no more a cure for malignant disease than any other treatment, but it can be used not only in cases which are operable in the ordinary way with greater safety and often with greater advantage, but also in cases which are beyond the scope of the knife. Post-cricoid growths—86 per cent. of which occur in women, and many in comparatively young women—have been dealt with, and life prolonged and much relief afforded, the pain and difficulty in swallowing being greatly relieved and in many cases temporarily cured. The operation is by no means without risk, but the condition is so desperate that the risk is justified. Cutting operations show a very high mortality, and can only be attempted in very early cases. Stuart Low has shown a number of cases in which large masses of malignant glands, which could not be removed, have been delayed in growth and diminished in size, and pain greatly modified, by plunging a diathermy point into them in many places. He dissects the cutaneous tissues off the growth first, and after the operation sutures them again, and in no cases has he had any ill effects follow.

It has been impossible owing to time to mention much of interest, and only a brief outline has been attempted; but I shall conclude by tabulating the advantages and disadvantages of diathermy.

Advantages.

Shock is practically nil, even after extensive operations.

Pain after the operation is less than after operation by knife or cautery.

Temperature is only slightly if at all raised, rarely reaches 100°, and drops within forty-eight hours.

The dangers of metastasis are much less than with cutting operations, blood vessels and lymphatics being sealed.

Risk of septic absorption is less than in any other form of operation.

There is complete destruction of visible and palpable malignant disease, and probably many outlying cells are destroyed which could not otherwise be reached. Malignant cells are of lower vitality than those of healthy tissue.

The operation is practically bloodless, is rapidly and easily performed, and can be easily repeated if necessary.

Tumours that are otherwise inoperable can be attacked.

Convalescence is rapid.

In many cases which are hopeless, relief can be given to the patient.

Disadvantages.

Healthy and diseased tissues are destroyed, but in cutting operations this also takes place.

Important vessels and nerves cannot be seen.

There is danger of secondary haemorrhage when working near large blood vessels.

There is a tendency to the formation of keloid when skin surfaces are involved.

THE MATERNITY HOSPITAL, WITH ITS ANTE-NATAL AND NEO-NATAL DEPARTMENTS.

BY

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A NEO-NATAL ward and clinic, an ante-natal clinic, and a pre-maternity ward are all needed in order to complete a modern maternity hospital in its rounded fullness. Gynaecological and pathological departments may be added to the building or may be provided elsewhere, according to the requirements or the institutional resources of the city or town in which the maternity hospital is situated; but the neo-natal and ante-natal departments are essential to the entire fulfilment of its purpose.

The maternity hospital occupies a separate place among hospitals, for, whilst they are designed for the relief of the sick, it is for the reception of many to whom the words "absolutely healthy" may be fitly applied. It is a hostel rather than a hospital. When Sir Thomas Browne wrote, "For the world, I count it not an Inne, but an Hospitall, and a place, not to live, but to die in," he was not thinking of the ideal maternity hospital of to-day and to-morrow, but of the very real general hospital of his time. When criticism asks ironically if living healthy mothers accompanied by living healthy babies always emerge from maternity hospitals, one has, of course, to admit sadly that they do not. With this admission, however, one is now justified in asserting that the things of which they die are preventable in the case of the mothers, and generally so in the case of their infants. The recognition of the preventability of maternal deaths in connexion with parturition has become wonderfully clear in recent years, and systematized efforts are now being made in many places and by ante-natal clinics and pre-maternity wards really to prevent such fatalities. On account of a less degree of familiarity with the causes of the diseases of the newborn infant it is not realized how possible their prevention also is; indeed, it is scarcely recognized how terribly fatal these maladies are, although the separate publication of the neo-natal death rate does not long leave this depressing conclusion in doubt. Their severity and their preventability are the incentive and the justification for the neo-natal department of the maternity hospitals of the future.

The Maternity Hospital of the Nineteenth Century.

Up to the close of the nineteenth century the maternity hospital was held to have discharged its legitimate functions when it made itself responsible for the care of women in labour, and of them and their babies in the puerperium. Within this limited sphere of service they achieved a measure of success, and their occasional but rather spectacular failures were in process of restriction towards the end of the century by the introduction of the practice of antiseptic and aseptic principles. Their too complete concentration upon the act of delivery and upon the days of recovery following it was, however, a heavy handicap to real progress in the rational understanding and in the practical solution of the problem of attaining safety in human reproduction. No amount of perfection in operative technique or in instrumental resource could cancel or annul the absence of supervision and care in the ante-natal months; one might, if one cared, speak of the brilliant performance of a craniotomy, but the executive

splendour of such an achievement was certainly not that of the sun, and it hardly attained to the lesser degree of the moon, for one felt instinctively that when there were two lives at stake there was little glory gained by saving the one at the expense of the other. Further, in too many places the maternity hospital had come to be almost wholly the refuge of the illegitimately pregnant mother carrying her unwanted baby; ethical considerations were unwarrantably dragged into purely obstetrical problems; and as a result the "unco guid" left no large benefactions for such institutions, and their annual meetings were sparsely attended in contrast with those of the palatial infirmary and the much admired sick children's hospital.

The Maternity Hospital of the Early Part of the Twentieth Century.

With the dawn of the twentieth century came the development of the idea of the hospitalization of pregnant women and the concomitant conception of the prevention of obstetric disasters thereby. The "ambulant patients" of the past were more generously recognized as the "expectant mothers" of the present day, and the kindlier breezes of the spring-time began to play around the maternity hospitals and their inmates in place of the coldness of the winter's blasts. By and by, and, as it would seem, by a special providence, maternity as an outlier or sort of Cinderella sister of child welfare came with a rush into the full sunshine of national recognition, approbation, and encouragement, and this has been accompanied by a small trickle of pecuniary support, perhaps the herald of the refreshing and much-needed shower. In the bringing about of this welcome change many forces were doubtless at work. The falling birth rate played its part; the havoc of the war was the voice of the prompter; the great principle of modern medicine—that "prevention is better than cure"—was the prevailing *motif*; interest in the wonders of pregnancy as a symbiosis and in embryology as the fairyland of science took its place in the *scenario*; and the uprush of public opinion on the rights of womanhood to a full fruition supplied the insistent chorus. These all were there; but the concrete fact so far as the maternity hospital was concerned was the opening of pre-maternity wards and the starting of ante-natal clinics.

The Ante-natal Department.

The development of an ante-natal department began in different ways in different places. In the Edinburgh hospital, which the writer believes to have led the van in this forward movement, the beginning was the founding of a bed for the diseases of pregnancy in 1901. The bed was soon increased to a ward with four beds, and the name "pre-maternity," which the writer had given to the former, was soon extended to the latter. Other events followed. Pregnant patients at all ages of gestation began to be cordially welcomed at the hospital and urged to return for supervision; nurses with special knowledge of pregnancy and its maladies began to go amongst the expectant mothers, and persuade them to come to the hospital for advice regarding the inconveniences as well as the danger signals of pregnancy; such "pre-natal nurses" were furnished with schedules by the writer setting forth the chief danger signals and were encouraged to fill them up; then separate hours and days were set apart for the seeing and advising of pregnant women, and these came to be called mother-consultations or ante-natal clinics. Next, the system within the hospital was conjoined with the town scheme of maternity and child welfare, the hospital itself formed the head centre of the mother-welfare part of the scheme, and health visitors began to act as an auxiliary staff outside the hospital; then the scattered activities in the hospital were gathered together in an annexe of the building and called the ante-natal department; and, lately, the care of the expectant mothers suffering from the venereal diseases has been added to the other duties of this new department. In the building up of this elaborate edifice smaller stones had to be hewn and fitted in, but the portions mentioned above were outstanding, and the pre-maternity ward was the great corner stone. In a series of some thirty articles published at various times in various places the writer has described the stages of the progress of the idea and the details.

The hospitals in the large towns in England, in contrast to Edinburgh, seem to have started their ante-natal departments with the ante-natal clinic as a foundation, and thereon to have built up towards the pre-maternity ward; but all do not seem to have reached that culminating institution. In the case of towns without a maternity hospital the ante-natal clinic allowed a beginning to be made to which a maternity hospital could be added later; but it can never be too often insisted that the ante-natal system without a pre-maternity ward or beds is dangerously incomplete, for whilst it ensures the detection of dangerous maladies in pregnancy it gives no destined place for their treatment. For pure prevention it may suffice (and that is much), but for curative success it is insufficient. In Glasgow, as may be learnt from the recently published report by Dr. Chalmers, the medical officer of health, ante-natal dispensaries and an ante-natal ward in the Glasgow Royal Maternity Hospital were opened between 1916 and 1918. In America the "pre-natal nurses" of Boston seem to have led the way in the development of ante-natal work, which later was affiliated with maternity hospitals and medical institutions; throughout it has been pre-eminently a movement in the full gaze of the public. During the war America to a large extent carried her ideas on mother and child welfare into France.

There have been differences also in nomenclature. Ante-natal clinics have also borne the names of pregnancy clinics, *ante-partum* consultations, free consultations for expectant mothers, and the like. The pre-maternity ward has been called the ante-natal or the pregnancy ward. One may speak of an ante-natal department or of a pre-maternity system; and of course the words ante-natal and pre-natal are synonymous. The writer's predilection is for pre-maternity ward and ante-natal clinic, but he has no strong preference. In 1891 or thereabout he was looking for a word which should express and include all the scattered subjects known as teratology, fetal diseases, germinal infections, monstrosities, morbid heredity, and the like, and he decided upon ante-natal pathology; but he was not strongly set upon it, and a mere turn of the die might have led him to *pre-natal* pathology, with the advantage of a syllable less to pronounce every time. Towards pre-maternity he had a much more decided leaning, and thought it more expressive.

It is hardly necessary in these days to write of the advantages to the maternity hospital of its ante-natal department. During recent months medical journals, and especially those devoted to maternity and child welfare, have published many appreciations; they have sometimes, too, added statistics, although the profitable time for discussing results has not yet come. The present danger, perhaps, is undue optimism, for there are parts of the subject which are still unknown, and the interrelations between mother and child are subtly complex. On the other hand, a maternity hospital which has added to itself an ante-natal department will not easily let it (with its illuminating "reports in advance") go again. It would be easy to enumerate some of the most obvious advantages it gives, such as an exact knowledge beforehand of the relation of the head of the fetus to the brim of the mother's pelvis, the correction of malpresentations and the rectification of malpositions, the prevention or cure of many of the smaller annoyances of pregnancy such as the pressure effects, the fully-informed treatment of many of the really severe danger signals of gestation such as those of toxaemia, the more accurate foretelling of the date of delivery, the estimation of fetal health or disease, and particularly the opportunity it gives for systematic treatment of the venereal diseases; but here it must suffice to emphasize more generally its outstanding value. That, in a word, is *prevision*.

The ante-natal department of a maternity hospital is like the air service of an army. Only a very incompetent commander would dare to attack without scouting, without a reconnaissance, and without his aviators who carry out both. Ante-natal supervision from the early months gives a bird's-eye view of the whole field of operations, and prepares the obstetrician for the attack he has to make upon the foe, that "auld enemy" death and disease, at the time of the confinement. He may find no signs of enemy presence; so much the better for his patient and so much the easier for him. On the other hand, he may discover the carefully camouflaged battery or the deadly cross-roads, with the most immediately happy results in the adoption of an advance in another

and a safer direction. Without such foresight and foreknowledge he is blinded like the general whose aeroplanes cannot rise or have been sent down crashing by the enemy. In both cases fog is a trouble. In obstetrics it often takes the form of hydramnios or of some other abnormal intrauterine condition which hides the underlying facts. Further, the two services are alike in the risk which they run when communication is interfered with; when by reason of a fault in the "wireless" the aviators are not getting their messages through there is danger; so when, through a lack of hearty co-operation between the ante-natal department and the delivery part of the maternity hospital, the labour ward is not getting its reports, there is grave risk. The ante-natal clinicians are the air force of obstetrics, and indispensable.

The Maternity Hospital of the Near Future.

It may be safely predicted that when the maternity hospital has its ante-natal department in thorough working order—that is to say, when patients begin to come at early dates in their expectancy and when all that can be discovered about them is learnt with accuracy at each visit—there will follow an immense gain to the practice of the institution in certainty of diagnosis, in early prevision of danger and consequent rational choice of treatment, and in lessening of maternal, of fetal, and of infantile mortality and morbidity. Only of one disadvantage has the writer heard—the ante-natal department may spoil the *operative* work of the place! It may, of course, replace a craniotomy by a Caesarean section now and again, not altogether a disadvantage, one thinks; it may actually diminish the number of operative interferences, not without bringing some sort of relief to the expectant mothers.

Even the best of ante-natal departments, however, do not entirely solve the maternity hospital's difficulties. The infants have to be cared for after birth as well as before it. To some extent—nay, to a large extent—ante-natal care, by lessening the risks of premature labours and in other ways, makes it more likely that babies will be born alive and will go on living; but it is insufficient in itself to do all that is needed by the delicate infants, by those who are diseased or deformed, and by those who add prematurity to the other impediments in their way to life and health. For them there must be something more; that something more may be called the neo-natal department.

The Neo-natal Department.

It is quite unnecessary to argue on behalf of the need for some means other than what is now in our possession for the care of the neonate during the month which follows birth. It is sufficient to state again the well known fact that more lives are lost in the first month of the life after birth than in any other. The neo-natal death rate, which is for one month, is about 40 per 1,000 *live* births, whilst the infantile death rate, which is for twelve months, is about 100 per 1,000 *live* births. If the stillbirths are added to the neo-natal death rate, as they may very properly be, the result may be as much as 80 per 1,000 births. The present neo-natal death rate is a powerful and a sufficient argument for the provision of a neo-natal department, or at any rate of greater neo-natal supervision and care. What is needed is realization that many of the neo-natal deaths are preventable, along with the concentration of medical and especially of obstetric attention upon them.

The causes of the high neo-natal rate are not difficult to find. Some neo-natal disasters are, so to say, postponed deaths. But for the favourable circumstances of ante-natal life the unborn infant would have died before its expulsion from the womb, for it had the potentialities of death in it. Instances of this are found in grave malformations and marked tissue changes due to disease. Other disasters are due to an actual absence of knowledge regarding the causation of many of the peculiarly neo-natal maladies, regarding their diagnosis, and regarding an effective treatment of them. Instances are supplied by nearly all the diseases (such as icterus, haemoglobinuria, melaena, sclerema, and oedema) which appear with the word *neonatorum* after them. Yet others are due to the prematurity of the infant, and another group contains cases in which the fatal issue is the result of the traumatism of birth or of infections received during it. But there is yet another maleficent influence at work: neo-natal life lies, so to say, on the "divide" between two great departments of medicine, between obstetrics on the one hand and pediatrics on the other, and it runs the risk of receiving insufficient attention from both. It is situated where obstetrics and pediatrics meet; and, so far as hospitals are concerned, its home is the interspace between the maternity and the sick children's hospital. In general practice the medical practitioner and the midwife are supposed to be in charge of the neonate as well as of his mother for a month; but it has to be admitted that too often the vigilance of both attendants flags long before the dangerous four weeks are over. It is to the honour of the doctor and the monthly nurse that brilliant triumphs have been recorded in the saving of weakly premature infants; but they are none of them achieved easily and they are sadly too few. A scrutiny of the complete returns of any maternity hospital (including the follow-up statistics of the babies who leave the institution about the twelfth or thirteenth day of life) will convince any who may be sceptical about the number of deaths which may be easily prevented at this age.

An attack upon the neo-natal mortality may, of course, be made by other means than the establishment of a neo-natal department in maternity hospitals. It may be made by handing the infants over to a sick children's hospital the moment they are born; but there are obvious disadvantages in this way of dealing with them, including their removal to a distance from their mothers and away from the attendants who have knowledge of the characters of the labour and the records of the ante-natal conditions. It may be done by the erection of special hospitals which may be named infants' hospitals or babies' institutes or "prematurities," and which would be under the care of doctors and nurses who would be, so to say, specialists in the management of delicate neonates; in these institutes also there might be well equipped laboratories for the investigation of the various problems of the causes of neo-natal deaths and for the preparation of the necessarily modified food. The great objection to such institutions is that it is unwise to increase the number of hospitals, especially in these days of financial strain, if their function can be performed by additions to existing hospitals. A neo-natal department in a maternity hospital may in the meantime meet the want.

The neo-natal, like the ante-natal, department must be a part of the maternity hospital; preferably it ought to be an annexe. It should consist of two parts—a pathological and a clinical. The former, which might be called the neo-natal pathological laboratory, should be devoted to research into the causes of early neo-natal deaths and of stillbirths, and would be under the care of an expert in ante-natal and neo-natal pathology. Already some hospitals have such a laboratory. In Edinburgh and Glasgow, for instance, for more than a year now the stillbirths and early neo-natal deaths have all been examined in searching necroscopies by Dr. F. J. Browne and Dr. A. M. Kennedy respectively, the latter working in a portion of the hospital, and the former in the neighbouring *post-mortem* department of the Edinburgh Royal Infirmary. The publication of these researches—which are being carried out under the Medical Research Council's Child Life Investigation Committee—ought to do much to advance the knowledge of neo-natal pathology. The clinical part of the neo-natal department should consist of a ward (or wards), not far removed but distinct from the ordinary puerperal patients' ward. The neo-natal ward will be furnished with electrical incubators and all other life-preserving means, will be under the management of physicians and sisters skilled in the treatment and nursing of newborn infants, and especially of premature and weakly ones, and will be most carefully guarded against infection. In some respects—for instance, in its temperature—its hygiene will be peculiar to itself, for it is really intended to serve as the real nursery, almost as the hothouse of the hospital. It must never be forgotten that a prematurely born infant is really a fetus struggling against the rigours of an environment for which he is not yet prepared; he is truly the tender exotic plant requiring the moist warmth of the conservatory until such time as his acclimatization is complete. There will be means for frequent weighing of the infants and apparatus for preparing milk according to chemical formulae carefully adapted to each child's requirements. In a word, there will be concentrated into this part of the maternity hospital all the devices of science and all the care of the obstetrical and nursing staff for that campaign

of neo-natal life saving which has here its special *terrain*. There will, of course, be special difficulties, such as the maintenance of touch between the babies and their mothers, but these are all capable of being overcome. When well enough the mothers will be welcomed in the ward and taught the nursing of delicate babies. The inmates will be all the babies born in the hospital or brought in from outside who call for special care because of injuries in labour, of delicacy of constitution, of the presence of disease, or, and most particularly, of prematurity of birth. A special place and differentiated handling will be afforded for the syphilitic babies and for those suffering from ophthalmia neonatorum. The age of the babies dealt with in the neo-natal ward will correspond with the name of the department; but here it is necessary to add a word of explanation. The ordinary neonate remains such for, roughly, a month after birth; but the fetus born at the seventh month of ante-natal life does not conclude his neo-natal existence till three months after his birth. If this obvious fact had been more generally recognized and acted upon there would not now have been so many neo-natal deaths recorded; such deaths were really ante-natal and not neo-natal in time, although they fell accidentally after the act of birth.

New Responsibilities.

The addition of ante-natal departments to maternity hospitals and their reinforcement with neo-natal departments has had and will have the effect of increasing the responsibilities of these institutions as well as of widening the range of their usefulness; but it will do more. It will increase—indeed it already has—the responsibilities of the hospital as a teaching centre. Both for medical students and nurses in training as midwives it is necessary to supply clinical instruction in the ante-natal and neo-natal departments. It is more than time that the exclusive or at least preponderating attention paid to teaching on the parturient and puerperal patient tacitly enjoined by the present regulations of the General Medical Council be extended and that tuition in ante-natal clinics and in the ante-natal and neo-natal wards be at least recommended in addition to the more usual and compulsory part of the training. It is, of course, essential that future practitioners should know about the handling of labours and the management of the puerperium, but it is most desirable that they shall be made familiar also with the examination of pregnant patients at all stages and with the hygiene and maladies of newborn, and especially of prematurely born, infants. Further, these additions will give a scope and a status to clinical obstetrics such as it does not now enjoy. It will then be a more complete presentation of the subject and will be less meagre in its content in comparison with clinical medicine and clinical surgery than it is at present.

The teaching of theoretical obstetrics will in turn be similarly affected. The lecturer will be led to give and pay more time and attention to ante-natal diagnosis and pathology and to neo-natal hygiene and disease than he commonly does now; and, again, as with the clinical aspects of the subject, a greater fullness will be introduced. The term "midwifery" is more truly descriptive of the teaching given to women in training for the examinations of the Central Midwives Board; something which both in nature and in extent surpasses this is what should be offered to the medical men and women of the future. The lectureship or chair might have been given the eminently and correctly descriptive name of genetics, but that term has been appropriated. Apparently we must fall back upon the term obstetrics, using that word in its widest sense.

The bearing on gynaecology of these ante-natal and neo-natal additions to the equipment of a maternity hospital is not necessarily direct. In Edinburgh the gynaecological department is in the Royal Infirmary, but in many places it is conjoined with the practice of the maternity hospital. In some respects this is admirable, for one large part of a gynaecologist's work is devoted to the repair of injuries and their results which are directly or indirectly due to faulty midwifery, and there is a distinct advantage in their being carried out in the same building. Thus the gynaecological department of a maternity hospital would serve the same purpose for the wounded puerperal woman which the neo-natal department discharges for the delicate infant. But it must not be forgotten that another large part of gynaecology is concerned with the treatment of morbid states, such as malignant and myomatous tumours of the uterus, cystomata of the ovaries, and malformations, which have no obvious or common connexion with childbearing. These are best dealt with in a surgical hospital, for they are really nowadays a part of surgery. It looks almost as if gynaecology were on the point of breaking up into two parts—one containing conditions due to or militating against childbirth, and the other dealing with diseases and tumours common to surgery and gynaecology, and special only in respect of the sex of the individual suffering from them. For the management of the first subdivision of gynaecological cases a department in the maternity hospital would be perfectly suitable; for that of the second subdivision the gynaecological ward of the general hospital would seem to be appropriate. The progress of the art and practice of obstetrics, as reinforced and aided by the work of the ante-natal department, will be in the direction of limiting more and more the occurrences calling for reparative gynaecological operations, and happily, in time, of abolishing them altogether.

THE TREATMENT OF UTERINE HAEMORRHAGE NOT ASSOCIATED WITH PREGNANCY.*

BY

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IN normal menstruation, when the superficial layers of the endometrium are cast off and blood is extruded from the abraded surface, clotting takes place very rapidly with abundant fibrin formation. Whitehouse[1] says: "The high thrombo-kinetic [blood-clotting] power of the endometrium is a provision of nature to facilitate clotting and prevent excessive haemorrhage. Even in well-marked cases of haemophilia profuse haemorrhage very rarely occurs during menstruation . . . Clinically . . . it is well known how rapidly, during the operation of curetting, the blood clots when mixed with the curetted endometrium, and special precautions are necessary to obtain tissue for microscopical purposes unmixed with clot." If, however, normal menstrual blood is examined after it has reached the vagina, it will be found to be almost completely fluid. Blood collected from the uterine cavity in a test tube is found to clot rapidly, but after some hours it becomes liquefied again. In other words, there is not only a blood-clotting substance present, but also a clot-dissolving substance, which normally produces liquefaction of the blood in the vagina, and so facilitates the evacuation of the menstrual discharges. There is evidence which suggests that the stroma cells of the endometrium secrete the clotting substance and the uterine glands the liquefying substance.

That ovarian secretion also exercises a profound control over menstruation is certain, and most probably the hormones of other endocrine glands are also potent, but little is known of how these act. Mechanical factors no doubt come in—for example, uterine muscular contractions may reduce menstrual loss by limiting the supply of blood to the endometrium. But the broad fact remains that the amount of menstrual bleeding is determined by the balanced action of various internal secretions about the mechanism of which we are at present without the knowledge which would enable us to control or regulate it. In practice we find that excessive menstrual loss usually occurs about the age of puberty or when the menopause is approaching. Excessive uterine haemorrhage during the child-bearing period is almost always associated with organic disease of the uterus or with some blood disease. The most frequent cause is, of course, fibroid tumours, and when a fibroid is accompanied by severe bleeding it will almost always be discovered either to be involving the endometrium, and thus likely to modify its secretory action, or it has itself undergone some degenerative change—necrobiosis, mucoid degeneration, red degeneration or malignant transformation—with consequent considerable chemical changes.

Until our knowledge has so improved that we are able to control the delicate balance of internal secretions, on

*Read at a meeting of the Bradford Medico-Chirurgical Society.

the upset of which appears to depend for the most part excessive uterine haemorrhage, in my opinion it is desirable to perform hysterectomy in all such cases whenever the bleeding is severe enough to make the patient to any extent an invalid. I am old enough to remember the time when it was considered so dangerous to remove a uterine fibroid that gynaecologists more often than not suggested not operation but rest and drugs when a woman anywhere near the menopause had a fibroid which did not actually threaten her life by reason of the profuseness of the bleeding. One of my most vivid memories is of a Sunday in 1896 when, on coming away from a visit to a lady of some 50 years of age, who had spent perhaps a dozen years constantly lying down either in bed or on a couch in an adjoining room, I was told that she had been all these years awaiting the cessation of a metrorrhagia due to a fibroid. I had watched Greig Smith remove large myomatous uteri safely and easily, and had seen more than one blanched feeble creature return a few months later to thank the surgeon for renewed vigorous health; and the contrast of a highly educated woman, whose keenly enjoyed activities had been brought to an end at the age of 40, was my first big stimulus to do surgical work—not just to save a patient from impending death, but from the far more ghastly death-in-life which constitutes existence for so many chronic invalids.

Briefly, in turn, bleeding (1) at puberty, (2) during the child-bearing years, and (3) about the period of menopause must be considered. Bleeding at puberty (1) may be severe, but practically always it rights itself, and I never even heard of any case which required hysterectomy. As I have indicated, it is probably due to imperfect balance between the various internal secretions.

Excessive bleeding during the child-bearing years (2) is, as stated before, most commonly due to fibroids, and, in my opinion, hysterectomy is indicated in almost every case where excessive bleeding, either menstrual or intermenstrual, is associated with the presence of a fibroid. Apart altogether from the bleeding or other urgent symptoms, there can be no doubt that fibroids interfere with good health. The association of myocardial degeneration and aortic disease with large fibroids is too frequent to be merely coincidence, and if a fibroid which has been found in the course of an abdominal section for some other condition is removed, the patient is almost certain to remark on her subsequently improved feeling of well-being.

Excessive bleeding may be associated with hypertrophy of the ovaries.

A year ago I operated on a patient of Dr. Lankester at the Bradford Royal Infirmary. She was a young woman, aged 26 years, who had had six children, and since her last confinement had had too frequent and profuse haemorrhage. When she was admitted she was obviously blanched, and had a soft, low tension pulse. The uterus was slightly subinvoluted but otherwise appeared normal. I kept her in bed for a few days until her general condition had improved, and then did a subtotal hysterectomy. She had the most hypertrophied ovaries I have ever seen. Whitehouse has treated such cases by repeated curettage without success. He suggests partial excision of the ovaries, but does not quote any case which has been successfully so treated.

It is, however, about the menopause age (3) when the most trying and frequent cases of haemorrhage occur.

(*a*) In cases of cervical cancer, by the time the growth has developed sufficiently to produce considerable haemorrhage it is practically certain to be too far advanced for radical treatment.

(*b*) Bland-Sutton has suggested that uterine fibrosis is the cause of many cases of severe uterine haemorrhage at the menopause, and in a not very large percentage of uteri removed for this condition thick-walled blood vessels can be demonstrated.

(*c*) A condition much more frequently found is one which affects chiefly the endometrium, known as hypertrophic glandular endometritis, but the microscope does not usually show the small cell infiltration indicative of inflammation; and it would probably be more correct to regard the condition rather as a degeneration of the endometrium. The uterus is rarely much if at all enlarged. It may be retroplaced, but is more frequently in normal position. There is, as a rule, nothing abnormal found about the appendages. After removal the uterine wall is, on section, distinctly pale, but the obviously abnormal condition is an oedematous thickened endometrium, usually in places forming one or more mucous polypi from ¼ in. to over 1 in. in length. I have hardly ever seen any blood clot in the uterus in these cases even when the operation has been undertaken as an emergency for severe active haemorrhage—which points, of course, to a probable deficiency of thrombokinase (blood-clotting substance).

(*d*) In other cases of irregular menopausal haemorrhage no abnormality is discovered in the uterus, either macroscopically or microscopically.

I think there can be little doubt that in all these cases, whether an obvious lesion of the uterine wall or of its lining membrane exists or not, the essential cause of the bleeding is an abnormality in the internal secretions. Some day we may learn how to regulate the functioning of these substances, but until we do I am strongly of the opinion that whenever the bleeding is so severe and so persistent as to make the patient's life a burden to her, the only certain means of curing her is to remove the uterus. Packing the vagina, curettage, ergot and similar drugs are most uncertain remedies and at best produce only temporary improvement. For beyond a doubt the patients who consult their doctors about bleeding of this sort as a rule never feel well; apart altogether from the haemorrhage there are symptoms, none of them perhaps very bad, but in the aggregate producing a sense of illness enough to make most women willing to risk operation in order to get rid of it, if they are not definitely discouraged by their medical attendant.

REFERENCE.

[1] H. Beckwith Whitehouse's Hunterian Lecture on Physiology and Pathology of Uterine Haemorrhage, February, 1914 (*Lancet*, March 28th, 1914).

SOME DEDUCTIONS FROM THE STATISTICS ON THE PREVENTION OF PULMONARY TUBERCULOSIS.

BY

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STATISTICS show us that, in spite of all that has been said and done for the prevention of tuberculosis, our efforts in regard to pulmonary tuberculosis have not been attended with the anticipated success. The decline in mortality from this cause dates from 1838, and has continued steadily ever since down to 1913. Koch's discovery of the tubercle bacillus in 1882 does not appear to have affected it in any way. On comparison of the statistics of the four principal zymotic diseases (measles, scarlet fever, whooping-cough, diphtheria) with those of pulmonary tuberculosis, in the fifty years 1861–1910, we find the following decline:

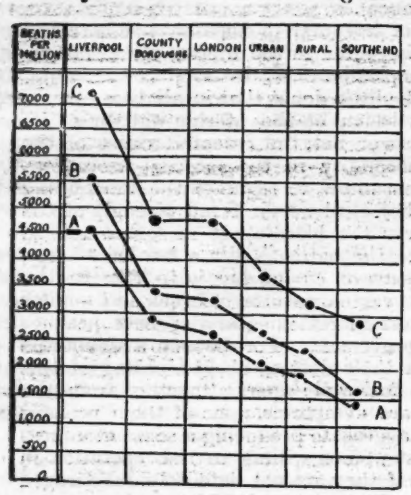
Comparison in Deaths per Million Living.

	1861-70.	1871-80.	1881-90.	1891-1900.	1900-10.
Zymotics	2,061	1,633	1,367	1,219	909
Pulmonary tuberculosis	2,590	2,231	1,810	1,418	1,143

Representing a decline of 55.89 per cent. in zymotics and of 55.86 per cent. in pulmonary tuberculosis.

Comparing the average mortality per million living in the first six years of the period 1902–1913 with the last six years, in the air-borne diseases the following result is found: Pneumonia shows a decline of 14 per cent., phthisis of 11.6 per cent., bronchitis of 10.68 per cent., and the four principal zymotics of 21 per cent. Pulmonary tubercle is only one of the air-borne group of diseases. The chart below, prepared from the statistics of the Registrar-General for 1916, shows clearly that whatever the causes of these diseases, the same causes are common to the whole group. The death rates from the individual items that go to form the group show corresponding variations in different sections of the population. The curve of tubercle shows a slight deviation only from the other diseases of the group in the case of London and Southend, but I think this is explained from the fact that London is a big hospital centre, while Southend is one of our health resorts. It will be seen that for the whole of England and Wales and for the other sections of the population bronchitis causes a higher death rate than pulmonary tuberculosis.

We all know from experience that all these diseases are closely associated. The statistics show us that zymotic diseases expend themselves as regards fatality in the first fifteen years of life. Accounting for over 26 per cent. of all deaths in the 1–5 year age period, 17 per cent. in 5–15 years, their mortality falls to 0.5 per cent. of all deaths in the period of 15–25 years. Respiratory diseases account for over 19 per cent. of all deaths in the first year, over 29 per cent. in 1–5, 11 per cent. in 5–15, and 7 per cent. of all deaths in the 15–25 age period. How much respiratory debility is represented by this high death rate? The answer seems to be suggested by the curve of pulmonary tubercle, which, starting with 2.29 per cent. in the 1–5 age period, 10.43 per cent. in 5–15, reaches its maximum of 33 per cent. in the age period of 15–25.



Air-borne diseases, representing three of the five principal causes of death in sections of the community. A Curve: Bronchitis, pneumonia, and other respiratory diseases. B Curve: Ditto, *plus* zymotic diseases. C Curve: Ditto, *plus* consumption.

The researches in regard to cerebro-spinal fever have done much to elucidate the problem of the source of respiratory infection. (BRITISH MEDICAL JOURNAL, September 18th, 1920.) It has been demonstrated how readily the meningococcus passes from throat to throat in an overcrowded community, and how rapidly it disappears with efficient ventilation and spacing out. The carrier rate rises twice as rapidly in the presence of sufferers from catarrh, so that for the prevention of outbreaks of meningitis it is more important to isolate the people suffering from colds than it is to isolate carriers.

Again, quoting from the *Australian Medical Journal* of June, 1920, in regard to the etiology of pneumonia, as the result of war experience, "Pneumonia is probably due to many factors, of which the association with persons suffering from catarrh is the most important." "Victor Vaughan found that the incidence of pneumonia among American soldiers in training camps fell when overcrowding and bad ventilation were removed." "Catarrh affects persons whose naso-faucial tissues are unhealthy . . . A person with a normal nose and throat does not acquire a catarrh." The same probably applies to the "carrier" condition. Experiments to inoculate a healthy nasopharynx with pathogenic organisms, so far as they have been attempted, have been a failure. The healthy mucosa readily disposes of them. Again, what is bronchitis, which causes more deaths every year than consumption, other than an extension of the common cold where the resistance is low or where it has been reduced by repeated attacks? Over 20 per cent. of consumptives give a history of repeated colds in the head (Osler and McCrae). Putting two and two together, therefore, the common cold is probably the most important connecting link between all respiratory infections; it is the means of (1) disseminating air-borne disease, and (2) of preparing the soil for further invasions or for the condition of carrier.

In conclusion, I feel convinced that the campaign against consumption must be directed against the air-borne diseases as a whole, and against the common cold in particular. The effects of other respiratory infections, including the common cold and zymotic diseases, in early life is to prepare the soil for the later invasions of the tubercle bacillus when otherwise resistance should be high. The remedy for all these diseases is a matter of improved housing and education in ventilation and general hygiene, yet at the same time much could be done meanwhile by the more thorough recognition and treatment of the common cold and its sequelae.

THE RELATION OF TEMPERATURE TO THE ONSET OF A CARDIAC IRREGULARITY.

BY

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MUCH has been written on the effect of temperature on the appearance of cardiac irregularity, and notably of the extra-systole. According to a number of observers there is a tendency for extra-systoles to disappear during high temperature, with a rapid pulse rate, after the manner in which they tend to disappear during exertion. Without any desire to controvert this view, which indeed is supported by much evidence, the following case is presented as affording in one direction a remarkable illustration of an opposite state of affairs, and possibly a sidelight on the etiology of this type of irregularity.

The patient, a young miner, was admitted on September 23rd, 1917, to the War Office Trench Fever Hospital, Hampstead, on the forty-second day from that on which he had contracted an attack of trench fever in France. When first seen he was suffering a typical relapse of this condition with backache, headache, hyperalgesia of his shins, muscular pains in the legs and shin-bone pain. He himself was well able, from his experience, to diagnose what was wrong. His temperature was then 103° F., his pulse was markedly irregular, and a prolonged polygraph tracing was taken. It was found that the irregularity was itself singularly regular, an extra-systole ventricular type occurring every third beat. Only very occasionally were there

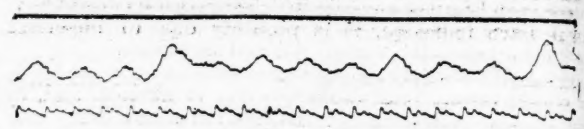

FIG. 1.

"runs" of regular rhythm, and these lasted for but a few seconds when they occurred, and then gave place to irregularity again.

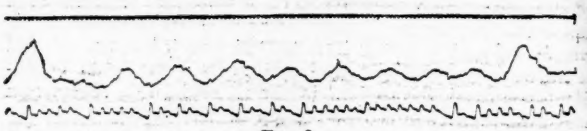

FIG. 2.

The first tracing was taken at 7.10 p.m. At 9.20 p.m. the temperature had fallen slightly, and the pulse was 100, but the extra-systoles were less frequent. At midnight the temperature was 101° F., the pulse 100, and the extra-systoles less frequent still.

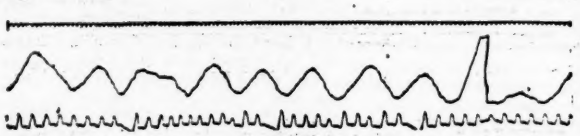

FIG. 3.

At 10 a.m. the next morning the temperature was 97.7°, the

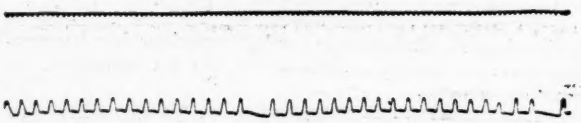

FIG. 4.

pulse rate 81, and there were no extra-systoles. The symptoms had markedly abated.

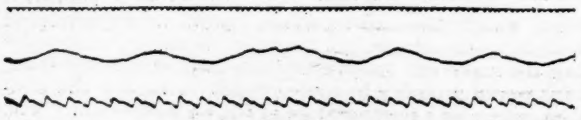

FIG. 5

An interval of six days then elapsed, during which, so far as could be determined, there were no extra-systoles. On October 1st, however, the patient began to complain again, and took to his bed with a temperature of 102.5° F., and with a large number of extra-systoles—though not so regular an irregularity as on the first occasion. His pulse rate was 110. He had pains and aches

as on his first attack. Next morning he was well, with but an occasional extra-systole, and no further notice of him was taken until three days later, when his temperature went up to 104° F.; pulse rate 110. He was now found to have a perfectly regular pulse, and he had no muscular pain, headache nor backache. He had, however, marked abdominal pain and diarrhoea. (In his former attacks he had been constipated.) His pulse is here shown. (Fig. 6.)

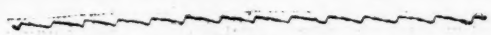

FIG. 6.

From this point not a single extra-systole was observed until October 15th, though the temperature remained high for a week, reaching normal only on the 12th. On October 10th rose spots appeared on the abdomen, and paratyphoid B was found bacteriologically to be present. The pulse rate did not rise above 100 after the first day; on October 8th it was 90, and on the 10th 75.

On October 16th slight pain returned to the legs, which had been quite free from this symptom—most unusually, as he stated—and a few extra-systoles appeared. These continued off and on till the 22nd. On the 23rd his temperature again rose, and reached 103° F. on the 26th, but without pain or headache. He was sure this was not his trench fever, and had no extra-systoles. The pulse was 130. Temperature and pulse fell to normal on the 28th, and some extra-systoles at once appeared. On November 1st, another attack with pain and headache came on, and this was accompanied by a few extra-systoles.

The interesting point is that when they appeared the bouts of extra-systoles were always accompanied by trench fever symptoms, and that an exact eight-day periodicity was shown in their onset. This is shown in Fig. 7. The temperature is also shown.

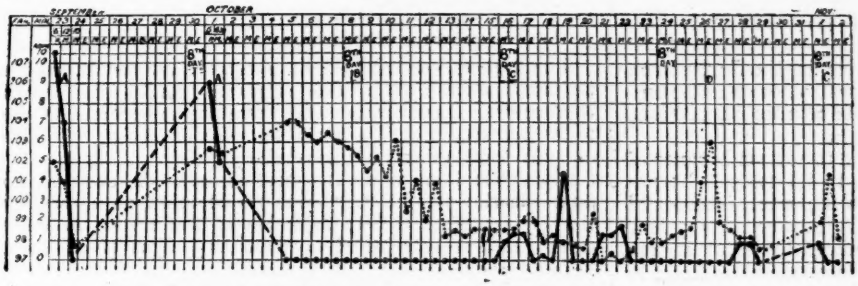

FIG. 7.—Heavy line = extra-systoles per minute. Dotted line = temperature. A, Typical trench fever. B, Diarrhoea and abdominal pains. C, Trench fever pains. D, Abdominal pains; no trench fever pains.

It is thus evident that the toxin of trench fever in this case produced a different effect on the rhythm of the heart from that produced by the toxin of paratyphoid B. Extra-systoles are relatively common in cases of trench fever.

THE HERPES-VARICELLA INFECTION.

BY

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GENERAL recognition has as yet scarcely been accorded to the contention, which was first advanced by Bókay[1] of Budapest twenty-nine years ago, and in support of which convincing evidence has been accumulating during the last few years, that herpes zoster and varicella own a common causal agent and are intercommunicable.

Further attention in this country was drawn to the association between these diseases by Dr. Le Feuvre in 1913, writing from Bulawayo. He reported nine cases in the *Guy's Hospital Gazette* and the *Medical Journal of South Africa*, in which varicella followed upon contact with herpes zoster; and others in which a varicella rash occurred in persons already suffering from herpes—the generalized rash appearing within five days after the appearance of the localized herpetic eruption. In this latter connexion he quoted a very pertinent observation by Adamson,[2] to the effect that in cases of herpes isolated vesicles may occur "sparsely scattered over all parts of the body," and suggested that this is in fact a scanty varicella eruption. It must be seldom that comprehensive search is made in a patient suffering from herpes for vesicles scattered over other parts of the body, but if this statement be generally corroborated it will constitute an important link in establishing the contention that the two diseases are of identical origin.

Since Le Feuvre's first communication over fifty well authenticated cases have been reported in which varicella developed in persons who had been intimately associated with patients suffering from herpes zoster, and in each instance the probability of the infection having been contracted from other cases of varicella could be excluded.

Moreover, the interval between the appearance of the herpetic eruption in the one patient and that of the varicella rash in the other was within the recognized incubation period of the latter disease, or exceeded that period by no more than one day. Thus, in 51 cases in which the necessary dates and details are given this interval was:

10 days in	...	...	5	18 days in	...	...	1
12 ,,	...	...	1	19 ,,	...	...	5
13 ,,	...	...	6	20 ,,	...	...	1
14 ,,	...	...	13	21 ,,	...	...	3
15 ,,	...	...	2	22 ,,	...	...	1
16 ,,	...	...	4	"From 8 to 20 days" in 8			
17 ,,	...	...	1				

It is somewhat remarkable that of these 51 cases of varicella 8 were adults—rather a high percentage considering the infantile nature of the complaint.

In 1919 Dr. Cranston Low,[3] in an illuminating paper rich in bibliography, concluded that these diseases are probably due to the same virus, and made the suggestion that in herpes zoster the infection spreads from the nose along the lymphatics to the olfactory nerves and the cerebro-spinal fluid; whereas in varicella it is probably a blood infection.

The following history of three cases which occurred in one family last autumn seems to be worth recording. Three children living in a country house were together in a tram on September 4th. This was the last occasion upon which they were away from home together in any enclosed or crowded place. On October 1st one child developed varicella at a school to which she had returned on September 22nd. On October 3rd, another child developed the disease at home, and, on October 4th, the third child developed it at another school 200 miles away, to which she had gone for her first term on September 21st.

Clearly, the three children contracted varicella independently, yet from some common source; and seeing that they had not been about together excepting in the country during the twenty-seven days preceding the appearance of the rash in the first case, it was at first difficult to explain how this had come about. The two school children had been certified, in good faith, before returning to their respective schools, as having been in contact with no infectious disease during the preceding three weeks, and it was a matter of considerable annoyance to all concerned that two schools should have become infected through them at the beginning of the term.

Whilst staying in the house in which they had spent their holidays the children's grandmother had suffered a very severe attack of supraorbital herpes, of which the eruption began to appear on September 14th. To this patient the children had limited access, and, in view of the fact that contact with any case of varicella can be excluded, the suspicion is very strong that the herpes was the source of their infection. In these cases the herpes-varicella interval was respectively seventeen, nineteen and twenty days from the first appearance of the herpetic eruption.

From the foregoing it appears that, sometimes at all events, herpes zoster is an infectious disease, contact with which is not rarely followed by varicella; but I have been able to find no recorded instance in which herpes in one patient has clearly given rise to herpes in another patient.

In all the cases that have been reported the varicella infection appears to have been contracted during the period of onset and development of the herpetic eruption, and no case has been reported in which it occurred as a result of association with herpes in its later stages. It is questionable, therefore, at what period of the attack the infection

from the herpetic person ceases to be communicable. From experience we know that varicella itself is highly infectious during the period of onset, and it is authoritatively laid down that persons suffering from varicella continue to be potential sources of infection until a new epidermic covering has spread over the site of the pocks, that is, until all scabs have separated, upon which precept practice is generally based; but until evidence is forthcoming that the period of infectivity similarly persists to the end of the attack of herpes, it would be unjustifiable to place a contact in quarantine until three weeks after the last herpetic scab had come away.

It must be admitted that the argument is not complete. Careful inquiry is necessary to elucidate the problem of where and how the herpetic infection is originally acquired. Then again, many cases of herpes zoster occur to which no spread of infection has been traced; and this raises the further question whether all cases of herpes zoster are in fact etiologically identical, or whether some are due to one infection, others to another infection, and others again to a process of a different category altogether.

REFERENCES.
[1] BRITISH MEDICAL JOURNAL Epitome, 1913. [2] H. G. Adamson, *Skin Affections of Childhood*. [3] BRITISH MEDICAL JOURNAL, 1919.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ASSOCIATION OF HERPES ZOSTER AND VARICELLA.

IN view of the recent correspondence in the JOURNAL on the subject of the association of herpes zoster and chicken-pox, I think the following note may be of interest, and also helpful in making record of such cases.

On January 10th last Mrs. X. came to see me because of a rash on her body. This proved to be typical herpes zoster along the course of one of the upper left intercostal nerves. She asked me at the time if there were any fear of infecting anyone else, and I assured her that it was most unlikely, and that I had never known such a thing to occur in my own experience.

On January 25th—that is fifteen days after the herpes zoster appeared—I was asked to see the elder daughter. She had a temperature of 103° and a typical rash of chicken-pox. Some of the spots were well in the blister stage, and others were still coming out in crops at different stages. Three days later the younger daughter also developed typical chicken-pox. Both daughters had chicken-pox twenty years ago, the elder slightly and the younger more severely. To their knowledge none of the family had been in contact with any infectious disease. The incubation period of chicken-pox being usually eleven to fifteen days, it follows that had Mrs. X. suffered from chicken-pox instead of herpes zoster no one would hesitate to say that the daughters were infected from her. After the above experience I think it would be wise to be guarded in one's statements in regard to the possibility of infection from a case of herpes zoster.

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A CASE OF TETANUS.

THE following case seems worthy of record, in view of the facts that: (1) there was, after the most careful scrutiny of the patient, and after investigation by the interpreter, no evidence or history of the minutest injury having occurred; (2) the case steadily improved, and finally recovered under treatment by the intramuscular method alone.

The patient (a German) reported sick to the medical officer in command of the prisoners of war compound in June, 1919, complaining of stiffness in the neck and feeling unwell. His temperature was not raised. He was "excused duty" and told to report next day. For the next three days he reported, but complained of nothing more than he did on the first day. On the evening of the fourth day he developed stiffness in the jaw and difficulty in swallowing, and was immediately sent to No. 42 Casualty Clearing Station at Douai diagnosed as (?) tetanus.

On admission the patient had an anxious expression, risus sardonicus was present, trismus was very marked, and swallowing difficult. There was great rigidity and tenderness of the muscles of the neck, the abdominal muscles were rigid and hard, the legs and arms rigid. Spasms were present, but not frequent, nor were they very severe; respirations were good. The temperature was 97° and the pulse 72. There was no evidence of cervical glandular inflammation, oral sepsis, carious teeth, or any other affection which might possibly give rise to the condition the patient presented.

Active antitetanic treatment was commenced at once, and within the first forty-eight hours of admission 52,000 units of antitetanic serum were injected intramuscularly. On the third day 8,000 units were injected, and for the next six days the daily dose was 9,000 units. On the tenth day no serum was given, and on the twelfth day a final dose of 1,500 units was injected, making altogether a total of 115,500 units administered in twelve days. The serum used was the concentrated form supplied by the Department of Hygiene, University of Toronto, a supply of which the A.D.M. stores fortunately had in stock at the time.

On the third day after admission the patient's temperature rose to 101°, at which level it remained more or less constant for seven days, when it gradually declined and became normal on the twelfth day. Constipation was very marked for the first five days, and required treatment. Sleeplessness and restlessness were also marked during the same period. By the seventh day the trismus was slightly lessened and the teeth could be just separated. From the eighth day onwards the trismus and muscular rigidity steadily diminished and the patient improved, until, on the twentieth day after admission, all signs and symptoms of the disease had disappeared. Shortly after this date the patient was up, and after a brief convalescence he was usefully employed for several weeks helping to look after the other German patients in hospital.

The outstanding features of the case may be summarized as follows:

1. No evidence of injury.
2. Rigidity of muscles of neck (later of abdomen and limbs).
3. Marked trismus.
4. No respiratory embarrassment.
5. Mild nature of convulsions.

The type of case should be classified as one in which trismus occurred after other signs of tetanus had shown themselves. Local premonitory symptoms occurred in the following order: (1) Pain (in muscles of neck); (2) difficulty in swallowing; (3) muscular rigidity.

Accidents due to serum were absent. There was no anaphylactic shock; there was no reaction, as shown by the temperature, to the injection of the serum in large doses, and there were at no time any signs of a serum rash appearing.

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MASSAGE OF THE HEART AND RESUSCITATION.

I NOTICE that Professor Gunn, in his paper on massage of the heart and resuscitation (January 1st), expresses surprise that a mechanical pump is not used for artificial respiration in the human subject. I think that other anaesthetists will agree with me when I say that a pump for supplying intermittent inflation of the lungs is unnecessary. If a catheter is passed into the trachea with its distal end at the bifurcation, and if a continuous stream of air or oxygen (pure or etherized) is made to pass along it, the patient's colour will remain pink, and the pulse normal, even although no respiratory movements are taking place. This shows that there is sufficient interchange of gases to oxygenate the blood.

If, however, both pleural cavities are opened, and a very considerable pressure is required to inflate the lungs, it is necessary to let the pressure fall to zero from time to time, or the filling of the heart will be interfered with. Fortunately the number of operations in which this is necessary is small.

I have often thought that there are many other conditions in which insufflation of the lungs is indicated, but which until recently have been regarded as hopeless. For instance, a cerebral abscess or haemorrhage may have caused respiration to cease through increased intracranial pressure. If a tracheal catheter is at once passed, and the lungs inflated with oxygen, life may be maintained for a sufficient time for an operation to be performed.

A short time ago I was called to see a girl of 10 *in extremis* with bronchopneumonia and pericarditis. She was quite unconscious; the lips were purple, and she was giving about eight gasping respirations per minute. No carotid or radial pulse could be detected. I was struck with the similarity she presented to a deeply anaesthetized patient with a partially obstructed airway. In both there were two morbid conditions: (1) the obstruction, and (2) the toxin, which was chemical in one and bacterial in the

other. As soon as possible I passed a catheter into her trachea by means of a bronchoscope and turned on a gentle stream of oxygen. By this time respirations had entirely ceased; the pupil was dilated and fixed, and no corneal reflex was present. At the end of two minutes the colour of the lips was pink, the corneal reflex returned, and the radial pulse became palpable. This, I think, was the more remarkable as the girl had previously had pituitrin 1 c.cm., strychnine gr. $\frac{1}{30}$, and inhalation of oxygen with no effect whatever. At the end of five minutes a considerable amount of mucus had been blown out of the trachea, and the patient's condition was much better. Unfortunately the improvement was not maintained, and she died later; but I think that the result justifies the employment of this treatment in chest conditions where the right heart is obviously giving out from the effects of the toxin, the pressure, and the deficient oxygen supply; the latter factor can at any rate be remedied, while the respiratory obstruction can also be relieved to a certain extent by the mechanical removal of secretion.

London, W. C. LANGTON HEWER, M.B.

Reports of Societies.

ACTION OF RADIUM AND X RAYS ON TUMOUR GROWTH.

AT a meeting of the Royal Society, held on January 27th, with the President, Professor C. S. SHERRINGTON, in the chair, Sir WALTER FLETCHER communicated a paper on the "Local and generalized action of radium and x rays upon tumour growth," by Professor S. RUSS, D.Sc., Dr. HELEN CHAMBERS and Miss GLADWYS M. SCOTT. The paper recorded an investigation made with the object of finding the effects of the beta and gamma rays from radium and x rays upon rat tumours under varying conditions. The local effects were obtained by exposing the tumour only to measured quantities of radiation, the animal not sharing to an appreciable extent in the irradiation. When large doses were employed, destructive action upon the tumour cells was observed; as the dose was reduced, the action tended to become stimulative in character, so that the tumour cells grew more rapidly than they would had they received no radiation. The generalized effects of the rays used were obtained by submitting the whole animal to the radiation, the tumour in the animal being screened by the use of suitable screens. It was found that large generalized doses could not be borne by the animals; when, however, they were given repeated small doses an increase in body weight and an increase in resistance towards tumour growth was observed. Under the usual conditions of radiation treatment in malignant disease in man the body shared to some extent in the radiation administered to the tumour, and the bearing of the present observations in this connexion was discussed.

TREATMENT OF FRACTURES.

A GENERAL meeting of the Border Counties Branch of the British Medical Association was held at the Lowther Hall, Carlisle, on January 14th, at 3.30 p.m. In the unavoidable absence of Dr. Livingstone, the Branch president, Dr. BOWSER of Penrith took the chair.

Major MEURICE SINCLAIR, C.M.G., R.A.M.C., gave a lecture on the treatment of fractures, and illustrated his methods by showing patients who had been put up in the splints used for the various fractures of the upper and lower extremities. The principles which governed the choice of the apparatus and the mode of application were thoroughly explained in each case. After a short interval for tea Major Sinclair showed a set of x-ray lantern slides of fractures which he had treated. A most cordial vote of thanks was passed to him on the proposal of Dr. CULLEN, seconded by Dr. CRERAR. Between sixty and seventy medical men and nurses were present.

A joint meeting of the Midland Branch of the British Medical Association and the Nottingham Medico-Chirurgical Society was held on January 20th, when, by permission of the Director-General of the Army Medical Service, Major SINCLAIR gave a demonstration at the General Hospital, and a lantern lecture at the Medico-Chirurgical Society's rooms, on fractures of the femur. Major Sinclair brought with him fifteen of his modifications of the Balkan beam, and the splints were shown in position on patients. The lecturer briefly described the Thomas splint and the principles of its action, and then showed a method of applying the splint as a first-aid treatment, in which an iron skewer inserted through the boot upper close to the sole was used as an attachment for extension, and the splint was slung to metal frames attached to the sides of the stretcher. The Thomas splint was then shown as used for the treatment of fractured femurs, and the lecturer emphasized the necessity (1) of preserving the normal forward arch of the femur; (2) of maintaining the foot in a position of eversion during the treatment; (3) of bending the splint near the knee-joint, especially in fractures of the lower third of the femur. The value of the treatment was explained and shown.

For cases which did not respond to ordinary extension with flannel and Sinclair's glue, the lecturer advocated extension by screws inserted into the upper end of the shaft of the tibia, and explained their advantages over callipers applied to the femoral condyles. He maintained that no permanent disability resulted from stretching the ligaments of the knee-joint by extension applied to the tibia. At the close of the demonstration the lecturer showed his various modifications of the Thomas arm splint and his special splints designed for fractures of the wrist and hand. The results shown were very striking, and at the close of the lecture the thanks of the Society and the Association were voted by acclamation to Major Sinclair for his practical and interesting demonstration and lecture. The demonstration and lecture were repeated on the following day for the nursing staffs of the general and neighbouring hospitals.

As a result of this demonstration it is expected that the various collieries and ambulance stations in the county will be equipped with Thomas splints for first-aid treatment of fractures of the lower extremity.

Reviews.

PHYSICAL SIGNS.

IN his well-written manual *Physical Signs in the Chest and Abdomen*, Dr. A. J. JEX-BLAKE[1] has successfully carried out a task that is more difficult than the elementary nature of the subject matter might at first sight suggest; such manuals being indeed hard to make attractive, often prove dull to the reader. Those who gain the basis of their knowledge of physical diagnosis under Dr. Jex-Blake's direction will do so with greater ease and interest than fell to the lot of some of their seniors; for the text is not a mere recital of stereotyped physical signs, but is brightened by occasional touches and practical hints, shrewd and even slightly whimsical, and contains remarks on the interpretation of the signs set forth in a manner showing the independence derived from a long experience in teaching. Thus variations from the normal, such as dilated venules on the chests of emphysematous persons sometimes regarded as of pathological significance and even dignified by a special Latin name, which have no important bearing, are mentioned only in passing. The use of the sphygmomanometer, polygraph, electrocardiograph, and x rays is not described, on the ground that these methods are not, as a rule, available for the individual student or practitioner of medicine; as regards the blood pressure estimations, this decision appears to be one that might be reconsidered when revision for a second edition becomes necessary, for in this respect the sphygmomanometer is hardly on the same plane as the electrocardiograph.

The work is divided into three parts; more than half the book is devoted to the examination of the chest, which is followed by a description of the physical signs of intrathoracic disease, and then by the section on the examination of the abdomen and an account of abdominal swellings. Under the heading of palpation, testing for superficial tenderness appropriately finds a place with a table of the chief cutaneous areas in which referred pain and super-

[1] *Physical Signs in the Chest and Abdomen.* By A. J. Jex-Blake, M.A., M.D., F.R.C.P. London: J. and A. Churchill. 1921. (Demy 8vo, pp. 119; 27 figures. 9s. 6d. net.)

ficial tenderness occur in visceral disease, and of their innervation; attention is drawn also to Dr. H. Head's observations on the reflex headaches and tenderness of the scalp secondary to disease of any of the thoracic or abdominal viscera. The appearance produced in the lower part of the abdomen by a distended urinary bladder is compared to that represented in Donatello's statue of David; this condition is said to reproduce, on percussion, the thrill characteristic of a hydatid cyst.

A CONSULTING SURGEON IN THE NEAR EAST.

THE record of Mr. TUBBY'S experiences as a consultant in the Near East[2] will have an interest—a melancholy one in some cases—for those who served with the Egyptian and Dardanelles Expeditionary Forces during the earlier years of the war. He has portrayed in a highly tolerant spirit the conditions under which medical and surgical aid was brought to the sick and wounded during these strenuous years. He records much that might have been bettered had the magnitude of the task which the landing in Gallipoli involved been more fully appreciated. He finds much to excuse and no little to admire in the gradual evolution of order out of chaos. That the consultant surgeons in the theatre of war had much to do with the improvement in the character of the surgical relief afforded to our troops there can be little doubt from Mr. Tubby's record, but one reads with some surprise that for more than a year the services of consultant physicians were not made available for the assistance of hospital and administrative authorities. This is all the more remarkable in view of the fact that so many officers of the Indian Medical Service—whose experience of tropical maladies is unrivalled—were at that time serving in the Near East.

The deplorable dearth of *x*-ray apparatus during the year 1915, at a time when they were most urgently required, was a matter that aroused the deepest concern on the part of all surgeons. Sir Victor Horsley from the moment of his arrival in Egypt had agitated for immediate action in this matter. We learn, therefore, with surprise from Mr. Tubby's narrative that it was not until the lapse of several months that the steps taken by the consulting surgeons to secure the proper provision of these indispensable aids to surgical diagnosis and treatment were at length attended by success.

Mr. Tubby's narrative of events in Palestine, and his comments on the duties, rank, status, and emoluments of the consultant surgeon, will be read with interest. The book is provided with a double index—one of names and one of subjects. It has a number of interesting illustrations. As a record of work attempted and achieved the book is of value. From its perusal one gains the impression that the consultant surgeon of the future should be one to whom the quotation with which Mr. Tubby opens his fourteenth chapter applies—"Now Mr. Great-Heart was a strong man, so he was not afraid of a lion."

AN ABSTRACT OF UROLOGY.

THE *Précis d'Urologie*, by FÉLIX LEGUEU and EDMUND PAPIN,[3] fulfils admirably the purpose for which it was written. The work is well named; it is a *précis*—concise, clearly written, and excellently illustrated. Altogether it is a work worthy of its eminent authors and of the distinguished school of urology to which they belong. In England genito-urinary surgery is apt to be regarded still as an appendage of the general surgeon, and for this reason an English school of urology does not exist; consequently French textbooks on this subject are of especial importance to English practitioners.

The work under review has been divided into three parts: the first deals with methods of examination, the second with signs and symptoms, and the third with the pathology of diseases of the genito-urinary apparatus. The surgical anatomy introduced into the first part is done with extreme thoroughness, and the pictures are unusually good. This excellence in illustration is, however, by no means confined to surgical anatomy. The graphic method of representation has been lavishly utilized throughout. It would be possible to review rapidly the whole of genito-urinary surgery merely by running through the illustrations to be found in this book without even referring to the text. For example, the various complications of such a complaint as senile enlargement of the prostate are represented in diagrammatic form. Lengthy descriptions are thus avoided, and a clearer and more lasting impression of the subject is conveyed to the reader. The work is not encumbered by historical references or bibliographies, and thus retains throughout its character as a practical *précis;* but for the benefit of those to whom it would be useful, a bibliography is appended at the end.

In their preface the authors state that they have written for the student and the practitioner alike, but the amount of information they have supplied would certainly seem to be sufficient to satisfy also the needs of those who specialize in genito-urinary surgery. Were it not for the fact that the majority of those who have taken up the study of this branch of surgery in England can read French we would urge that an English translation of the work should be prepared. While we retain our appreciation of the larger treatise on urology previously published by Professor Legueu, we believe that this *précis* will meet with a still greater success, and prove itself a still more useful publication.

AN AMERICAN MANUAL OF PSYCHIATRY.

THE popular *Manual of Psychiatry*,[4] of which Dr. A. J. ROSANOFF is the editor, has now reached its fifth edition. The volume first appeared in 1905 as a translation of the French textbook by Dr. J. Rogues de Fursac, and anyone who is in doubt as to the progress of psychiatry during these fifteen years would do well to compare the first and fifth editions of this manual. It is especially made evident in the present edition, which contains several new chapters, that psychiatry is no longer a narrow speciality, the activities of which are confined to the institutions for the insane. Not only has it a vital and necessary relation to medicine as a whole, but it finds increasing points of contact with schools and social organizations concerned with the all-important problems of mental hygiene. A special chapter is devoted to psychiatric social work, especially in relation to the training of the social worker and the development of a social service department in hospitals for mental disorder. It is impossible to avoid the reflection that in such directions America is a good deal ahead of this country, and is more fully alive to the needs of the community in respect to the extramural applications of psychiatry.

The attention given to the practical side of psychiatry in this volume may be favourably commented upon. The appendices containing descriptions of the technique of lumbar puncture, cell counts, and chemical tests will be found most helpful to the student and practitioner, and perhaps even more so the seventy pages devoted to a detailed account of the Stanford Revision of the Binet-Simon Intelligence Scale. Much skill and experience is certainly necessary to apply these tests usefully. They contain numerous pitfalls for the unwary, and the instructions herein included would do much to prevent errors. Dr. Rosanoff devotes seventy-four pages to the free association tests (Kent-Rosanoff), a subject in respect to which he is responsible for much original work. The frequency tables will be found of value to those who are specially interested, but the amount of detail given is perhaps in excess of the needs of students.

The chapters concerned with symptomatology and the various clinical groups are not so expressive of more recent developments as are the sections relating to the wider fields into which psychiatry has now extended. The author's treatment is mainly descriptive, and he does not attempt any psychological interpretation of abnormal reactions. An exception is made, however, in the case of hysteria, where attention is devoted to the psychic mechanisms of the disorder. The discussion upon the distinction between hysteria and malingering is vigorous in tone; the tendency to differentiate these conditions on the basis of the conscious or unconscious quality of the motivation is strongly criticized; and there is a good deal

[2] *A Consulting Surgeon in the Near East.* By A. H. Tubby, C.B., C.M.G., M.S.Lond., F.R.C.S.Eng. London: Christophers. (Demy 8vo, pp. xiii + 278; illustrated. 15s. net.)

[3] *Précis d'Urologie.* By F. Legueu and E. Papin. Paris: A. Maloine et Fils. 1921. (Demy 8vo, pp. 709; 479 figs. Fr. 50; post free, Fr. 55.)

[4] *Manual of Psychiatry.* Edited by Aaron J. Rosanoff, M.D., Clinical Director, King's Park State Hospital, N.Y. Fifth edition, revised and enlarged. New York: John Wiley and Sons; London: Chapman and Hall. 1920. (Post 8vo, pp. xv + 684. 22s. net.)

to be said for the view that this vague and subjective criterion "should not seriously occupy the professional mind as a guide in practical work." The author expresses the opinion that the difference is entirely one of view-point. Hysteria is a term stressing the medical view-point and malingering the legal. His opinions as to the motivating factors in the production of hysterical symptoms are expressed with considerable frankness, and a somewhat unflattering picture of the hysterical personality is drawn.

A chapter is devoted to psycho-analysis. It chiefly consists of selected passages from the works of Freud. There is no evidence, however, that Freudian views have to any extent influenced the psychiatric outlook of the author. There are numerous other additions in this volume besides those to which reference has been made, and it may be regarded as having been brought thoroughly up to date. There is no doubt that it will continue to maintain the reputation it has had in the past as a sound and trustworthy textbook, including within a reasonable compass the main facts which the student and practitioner require to know.

SYPHILIS, ESPECIALLY OF THE SKIN.

IN *Syphilis and its Treatment*,[5] by Dr. WILFRID FOX, the author has written with special reference to syphilis of the skin. Indeed, in our opinion, he would have done well to indicate definitely in the main title of his work that it had been written from the standpoint of the dermatologist rather than that of the syphilologist. The book is the outcome of work done in the venereal and dermatological departments of St. George's Hospital and the Seamen's Hospital at Greenwich. It is intended for the use of medical students and practitioners of medicine.

By far the best chapters are those dealing with cutaneous lesions; this subject is well illustrated, and the plates are very clear. The author has given an excellent description of the various forms of rashes met with in the secondary stage of syphilis, and his paragraph on psoriasiform rashes is good. The table of the various points which enable papulo-squamous syphilides to be distinguished from psoriasis is especially useful. The paragraphs dealing with syphilis of tissues other than the skin and mucous membranes are, on the whole, disappointing, and the same must be said of the chapter on treatment. If intended for the use of students, this chapter should have contained at least one or two illustrations in order to render it clearer. It is difficult for a specialist in writing a textbook on syphilis to avoid giving a false impression of the relative importance of its protean manifestations. Whilst many pages have been devoted to the subject of cutaneous syphilis, only a few paragraphs have been spared for the infinitely more important subject of neuro-syphilis. For this reason Dr. Fox's book must tend to give the student an impression that cutaneous lesions rather than lesions of the central nervous system are the most serious manifestation of the disease.

In dealing with the treatment of congenital syphilis the author speaks in a rather half-hearted way of the use of the salvarsan preparations. Intramuscular injections of galyl he is inclined to consider too painful for so young a subject as an infant; in older patients, whenever a suitable vein can be discovered, he suggests the adoption of the ordinary methods of intravenous injection. In our opinion the results recently obtained from the use of arsenical preparations in congenital syphilis are sufficiently good to justify its routine use in such cases. The insertion of the final chapter on syphilis and public health is to be welcomed. The more fully the medical profession becomes acquainted with the importance of venereal disease as a factor in public health, the more likely is the subject to receive the attention and consideration that it merits.

As we have indicated, Dr. Wilfrid Fox has written an excellent work on the cutaneous manifestations of syphilis, but he has not succeeded so well in his attempt to make it a general treatise on syphilis.

[5] *Syphilis and its Treatment; with Special Reference to Syphilis of the Skin.* By W. S. Fox, M.A., M.D., B.C.Cantab., M.R.C.P.Lond. London: H. K. Lewis and Co., Ltd. 1920. (Roy. 8vo, pp. 203; 39 figures, 15 plates. 36s. net.)

THE SCHOOL OF SALERNUM.

THE increasing number of lovers of medical history will welcome the appearance of the volume containing, in addition to Sir John Harington's English version (1607) of the *Regimen Sanitatis Salernitatum*[6] and the Latin text used by Sir Alexander Croke, two interesting introductory articles by Dr. F. R. PACKARD on the history of the school at Salernum, and by Dr. FIELDING H. GARRISON on the pre-history of the *Regimen Sanitatis*. There are also critical notes on the texts of the poem. Dr. Packard accepts the view, and quotes Croke's arguments in favour of, the widely accepted belief that the poem was composed for Duke Robert, the eldest son of William the Conqueror, who visited Salerno to obtain treatment for a poisoned wound. Dr. Garrison, however, follows Sudhoff, who rejects this tradition and traces the poem to a prose hygienic epistle supposed to have been written by Aristotle for the benefit of his pupil Alexander the Great, and translated into Latin at the beginning of the twelfth century by a baptized Jew, John of Toledo. Dr. Packard admits that the authorship is doubtful, but appears to accept Croke's opinion that it was written by John of Milan, who is supposed to have been the head of the faculty of the Salerno school at the time. In this connexion it may be mentioned that in his scholarly history of this poem in the first Finlayson memorial lecture (1908) Sir Norman Moore came to the conclusion that the author is unknown. Dr. Packard's interesting sketch of Sir John Harington, who in addition to being one of the most characteristic of the Elizabethan courtiers, invented and described the modern water-closet, in "A new Discourse of a stale subject called the Metamorphosis of Ajax" (London, 1596), recalls Dr. J. G. Adami's attractive essay on this many-sided Cambridge graduate.

The poem is a handbook of domestic medicine; it was much in request, and, as was so common in the days before printed books, became much altered in the course of many copyings, successive scribes adding to it at their discretion; thus the early copy commented on by Arnold of Villa Nova contained about 363 lines, but subsequently it became expanded to over a thousand lines. It provides advice on diet, personal hygiene, and remedies, and ends on the cheerful note:

> And ye our Physicke rules that friendly read,
> God grant that Physicke you may neuer need.

Like other publications from P. B. Hoeber, this volume is well printed and successfully illustrated.

NOTES ON BOOKS.

A FIFTH edition has just been published of Dr. J. RYLAND WHITAKER'S book on the anatomy of the central nervous system.[7] Dr. Whitaker is well known to many generations of Edinburgh students and Fellowship candidates as a singularly gifted teacher of anatomy, with a rare talent for clarity of exposition of the most intricate subject. This faculty is reflected in the present volume, the popularity of which is shown by the number of editions published, although it was once out of print for some years. The book is not long, but it is very complete; any increase in length over that of previous editions is due to rewriting with the object of rendering obscure passages easier to understand. The brief summaries and tables are an aid to quick and easy reference, and the excellent illustrations and diagrams fulfil their purpose of increasing lucidity where necessary. Dr. Whitaker talks of growing old, and if ever he does retire—though that seems impossible to old Edinburgh students—this book of his, filling a place peculiarly its own, will certainly keep his memory green.

Dr. A. S. GUBB, of Mustapha Supérieur, Algiers, has published, under the title *From Cloud to Sunshine*, a new edition (the tenth) of his notes on Algiers and Algeria as a winter resort, which he first published some years ago. It is not exactly a guide-book but an impressionist sketch,

[6] *The School of Salernum—Regimen Sanitatis Salernitatum.* The English version by Sir John Harington; History of the School of Salernum, by Francis R. Packard, M.D.; and a note on the Pre-History of the *Regimen Sanitatis*, by Fielding H Garrison, M.D. New York: Paul B. Hoeber. 1920. (Demy 8vo, pp. 214, illustrated. 3.75 dollars.)

[7] *Anatomy of the Brain and Spinal Cord.* By J. Ryland Whitaker, M.B., F.R.C.P. Fifth edition. Edinburgh: E. and S. Livingstone. 1921. (Post 8vo, pp. 262; 103 illustrations. 12s. 6d. net.)

well illustrated by photographs. In addition to Algiers itself and Hammam-R'Irha, there are short notes on many more distant places to which agreeable excursions can be made. The book appears to be issued for private circulation, as no publisher is mentioned.

THE anonymous author of *Memories and Musings of a Hospital Surgeon*[8] has spent nearly fifty years in hospitals—as a student in London, as a house-surgeon, as an operating and consultant surgeon, and as a hospital governor. He is therefore well qualified to discourse to the layman of hospitals past and present, of patients and children, of operations and treatment in general, of medical education and the future of hospitals. He has little that is new or original to say, but in a manner of amiable rotundity—a compound fracture is described as having "an open wound leading down to the broken bone, thus exposing it to the deleterious influences of external agents"—he gives us, unconsciously, a self-portrait of a surgeon of the older generation. The author's allusions are to his own experiences, to the masters of his own craft, and to the Bible; he is a personal friend of all his poor hospital patients; his character is founded upon his early religious convictions.

We have received the thirty-sixth edition of *Sell's World's Press*,[9] which forms an accurate and comprehensive directory to the periodicals published in this and other countries. The editor in his foreword records that, owing to the enormous increase in the cost of production, many old and valuable publications have now ceased to exist, while during the past year more than 500 have been forced to increase their selling price. The present edition of this useful directory, with its 35,000 entries, is introduced by a number of articles of interest to those concerned in newspaper production, by, among others, Lord Northcliffe, Mr. Robert Donald, and Mr. H. W. Massingham.

[8] *Memories and Musings of a Hospital Surgeon.* Glasgow: Maclehose, Jackson, and Co.; London: Macmillan and Co., Ltd. 1920. (Cr. 8vo, pp. 198. 7s. 6d. net.)

[9] *Sell's World's Press.* Founded by Henry Sell. Thirty-sixth edition. Edited by E. T. Brown. London: Sells, Ltd. 1921. (Roy. 8vo, pp. 158; illustrated.)

APPLIANCES AND PREPARATIONS.

An Outfit for Immediate Treatment of Cases of Poisoning.

DR. C. A. STIDSTON (Wolverhampton) writes: An examination of the reports of the Registrar-General for England and Wales alone, for the years 1901–1918 inclusive, reveals the fact that during those eighteen years more than ten thousand deaths have occurred from poisoning, caused by accident, negligence, suicide, or murder. Nearly eight thousand five hundred of these deaths were suicidal. There are no means of estimating how many additional cases of poisoning occurred with recovery, but institutional and private practice justify the assumption that the number of cases that recover greatly exceeds the number of cases that prove fatal. Hence it appears that poisoning is a serious cause of death and illness, and its treatment at the earliest moment is a matter of importance.

Whilst the poisons chiefly taken are commonly known and easily accessible—such as carbolic acid, which caused 1,740 of the deaths quoted above; oxalic acid, which caused 1,439; hydrochloric acid, which caused 1,249; and opium derivatives, which caused 1,062—the following list (compiled from the reports) shows how extensive and varied are the possible sources of fatal or non-fatal poisoning:

Acetic acid; acetanilide; aconite plant; ammonia; aniline; antimony chloride; aspirin; atropine sulphate; A.B.C. liniment; ammoniated tincture of guaiacum.
Barium chloride; belladonna; berries of laurustinus, deadly nightshade, ivy, laburnum.
Chlorodyne; chloroform; cocaine; coal tar; chromic acid; camphor; copper sulphate; chloride of lime; creosote; camphorated oil; caustic soda and potash; chloral hydrate; cresolene; carbolacene; coal-tar naphtha; colza oil.
Daisies; digitalis; delphinium; dry daisies; Dutch drops.
Ether; eserine; eucalyptus oil; ergot.
Formalin; fluoric acid; formaldehyde.
Gaultheria oil.
Hartshorn oil; hyoscyamus.
Iodine; insecticide.
Lysol.
Methylated spirits.
Nepenthe; nicotine; nitre; nitric acid.
Paraffin; paregoric; potassium chlorate, oxalate, permanganate, bromide, binoxalate, and chloride; petrol; phosphorus; paraldehyde.
Quinine.
Red precipitate; rhubarb leaves.
Sodium nitrate; salts of lemon; sulphonal; sheep foot-rot dressing; soldering fluid; soap liniment; sulphuric acid; solanin; sal volatile.
Thymo-cresol; tartar emetic; trional; toxal.
Veronal; vermin destroyer.
Wood spirit; weed-killer.
Yew berries.
Zinc sulphate.

A summons to a case of poisoning is often a cause of bewilderment and dismay to a medical man. He hurriedly tosses a few chance emetics and antidotes into a bag, often owing to the scanty information offered by the messenger, omitting the items essential for dealing with the particular case. The stomach tube is not to be found; the hypodermic case is, perhaps, at the bottom of the midwifery bag, the book on toxicology is lost. To complete the outfit a futile attempt is made to reach an inaccessible chemist, and a delayed arrival finds the patient beyond treatment or only fit for transfer to a distant institution, there to succumb and await the coroner's court. Clearly it is advisable that an outfit containing emetics, stimulants, antidotes, and apparatus for emptying the stomach should be in the possession of every medical practitioner and should be available in the first-aid rooms of works, in police stations, and in the casualty departments of hospitals. This need having been recently and painfully brought home to me by personal experience, I have designed an outfit to prevent delay in future cases. It consists of a small, easily portable, japanned tin case, which opens portmanteau-wise and which, to avoid the tragedy of the lost key, possesses no lock. The contents of the case are all displayed when it is opened, and consist of the following:

Stomach tube and rubber funnel; a smaller tube for children.
Gag to open mouth; gag to pass tube through.
Tongue forceps.
Record hypodermic syringe.
Murrell's book, *What to do in Cases of Poisoning.*
Hypodermic tablets: Apomorphine hydrochlorate, strychnine nitrate, atropine sulphate, morphine tartrate, aconitine, pilocarpin nitrate, digitalin.
Capsules of amyl nitrite.
Pituitrin.
The following in two or four ounce glass-stoppered bottles—with dosage on labels:

Zinc sulphate; sodium chloride; mustard; brandy; coffee; tea; sal volatile; wood charcoal; permanganate of potash; dialysed iron syrup of chloral; magnesia; potassium bromide; chloroform sodium carbonate; sodium sulphate; magnesium sulphate vinegar; tincture of opium; olive oil; castor oil.

Spare bottles.

This outfit has been made and furnished by Messrs. Philip Harris, chemists, of Birmingham.

Nasal "Aseptoids."

WE have received from Messrs. Oppenheimer, Son and Company, Ltd., a sample of "aseptoids" nasal compound, prepared from a formula by the late Dr. Macnaughton Jones. The ingredients are moulded without compression into square-shaped tablets, readily soluble in warm water for use as a gargle or nasal douche; their uncommon shape and appearance make it unlikely that they would be mistaken for medicinal tablets and swallowed.

THE DIARY OF CROSSE OF NORWICH.

THE diary of Bob Sawyer would have been interesting reading. *Mutatis mutandis*, it would have run somewhat on the lines of the well known "Diary of a Resurrectionist," and would have been, in part at least, a record of drinking bouts with Mr. Allen and the Pickwickians. It would not, however, have been a fair representation of the life of medical students then. A hundred years ago there were at least three types of medical students—the Sawyers and Allens, the hard-worked and ill-fed apprentices, and the select class who paid premiums to teachers of repute, and may be said to have been young men with a future. To the last-mentioned category belonged John Greene Crosse, afterwards well known, and now still quoted as "Crosse of Norwich."

Born in 1790 of yeoman parentage in Suffolk, Crosse was well educated by a hard-working father, and never really sank below the line of self-respect and well-being. It was not till he had reached the age of 29 that he, then in practice in Norwich, procured a book with a view "of filling a few of its pages from time to time with memoirs." This was in continuation of his boyish diaries. As became an accomplished practitioner, he now aimed during his remaining life at amassing materials for a classic work on surgery, and "should aspire to no higher pitch of posthumous fame than to have a few memoirs of my life prefixed to my work, in order to show how industrious habits are their own reward, and how obscurity of birth

and disadvantages in education are overcome by steady and honest perseverance."

After this formidably meritorious opening, which suggests a reflection by Herbert Spencer, we meet with this quaint vignette: "I can well remember, when a child put out to nurse in a humble cottage near my father's, that the old lady, of ominous name, *Goody Death*, during a thunderstorm, used to read her Bible in great fear, and offer prayers to appease a justly offended God, humble and contrite for her manifold sins; and I by her side joined her as far as my age would allow in fear and prayer." He lived to find out the secret of summer storms as purifiers of the air and fertilizers of the soil, and to take the then optimistic view of natural phenomena. He was not sent to boarding-school, and for this reason is of opinion that he contracted lifelong unsocial habits. Reading, writing, and arithmetic he learned from a horrifying master. "His stern brow, raucous voice, and long cane, are now livelily depicted to my mind." When Mr. Crosse was in his twelfth year, "a Welch gentleman making some mistake at college (not implicating his good character, an *informality* I should call it) found it well to rusticate." Indeed, Mr. "Jones of Jesus," as we will call him, married while still an undergraduate, and was compelled to open a school for a living. The little boy was one of his first pupils. Mr. Jones was "a plodding working man," and an increasing family goaded him into being an excellent teacher. To him Crosse owed a knowledge of Latin and Greek, and laid the foundation of remarkable linguistic attainments under his mild rule. At the age of 15, on his way home from school he tried "a feat in jumping" and broke his leg. "The respectable village surgeon attended me: he was one of the old school; of fine, soft, soothing manners, clean dressed, with powdered head; rode slowly a very well-looking horse; in short, he was a gentleman, and commanded the respect of everyone when he entered the house; he was also a skilful and kind surgeon. What wonder that the idea should be awakened in my mind to be of the medical profession! to be as great a man as he—the Village Doctor! to whom everyone bowed, and who could relieve pain and cure injuries so quickly and skilfully. I had conceived an object of ambition, and the idea never deserted me. I was in a month upon my crutches and soon recovered; a surgical case fixed my future destinies."

For a time, however, after finishing his study of Latin, Greek, French, and Euclid, he was in a lawyer's office and did not like his work. He attended bankruptcy meetings and feasted "at midnight at the expense of the already distracted creditors. Those were good times for lawyers. A learned chancellor, whom I met on one such occasion, I well remember complimenting me on my quickness in counting money; but all would not do, my mind was prepossessed—I quitted the law to follow my inclination; I made my own choice; it was a pledge to success. The surgeon who cured my leg agreed to take me as his first and only pupil, and I was accordingly articled in due form for five years."

He took up his residence with Mr. Bayly of Stowmarket, bought a book, and wrote on the title-page: "Hic liber a Johanne G. Crosse fiebat. Augusti 8vo, Anno Domini 1806. On Wednesday, April 3rd, 1805, I broke my leg."

The first entry in the diary runs thus: "Die lunae Augusti 18, 1806. Came to Mr. Bayly's. Rolled up pills, etc." There follow accounts of daily routine. He goes to bed at ten or eleven o'clock, rises from six to eight. On August 27th he "did up a man's leg before Mr. Bayly was up, for the first time. Made a pledget and put it into a boy's ankle. Made 38 pills in the afternoon." His first surgical operation was the drawing of a tooth. Later he went with Mr. Bayly to see Martin Chenery's leg, which was hollow. "Mr. B. ran a silver pin in three inches, and a matter came out."

This first volume ends on January 31st, 1809, and he has then been to many balls and music parties and has lived a civilized life. There is a charming Miss Bayly, who afterwards becomes his wife. Volume II is much more profound, and we find him a deep and careful student of general literature. He reads a Life of Malesherbes, the advocate and friend of Louis XVI. "His wisdom I admire, his piety, his liberality, his courage; he was the foe of tyranny, the encourager of learning, the defender of the oppressed. . . . I will endeavour to imitate so virtuous a character, and I pray for the assistance of Almighty God." He reads Corneille and religious books, and plays a good deal of whist. "I would never trifle so much as to play were it not to please; he has obtained a great point in the art of pleasing who has learnt to trifle well." England being then in the throes of war with Napoleon, he reflects sagely on the proper conduct to observe during times of stress. "It behoves us at all times to keep from every wicked thing, but more especially in time of war and danger." The war is responsible for strange social reverses. "A woman came begging here to-day who was, or had been, mistress of French and music; she says she had a good education and had lived in high life, but a series of misfortunes reduced her to the necessity of begging her bread in her old age. I heard her play on the piano, and though long out of practice and her fingers stiffened by labour and fatigue she showed some knowledge and execution. French she could speak as fluently as English."

Crosse wrote two more volumes of reflections and daily occurrences, the fourth glancing at his early career as a student at St. George's in 1811–13. He became the pupil, and later the lifelong friend, of Sir Charles Bell. In 1812 he studied under him and under Brodie, Brand, Clarke, and Home, and remarks in his journal, "Very industrious all this winter, sitting up constantly till past two a.m." Throughout life he was an ardent student, a man of an intensely earnest character, yet vivacious and joyous in spirit. He became famous as a lithotomist in a district where calculous disease was endemic. As an operator he had few rivals, and his students delighted in his teaching. He died worn out by the multiplicity of his activities at the age of 60. He had burnt the candle at both ends for many years, during which he took notes of all important cases in his public and private practice, wrote and read professional works voluminously, lectured, operated, rode long distances to attend *post-mortem* examinations, and at night, after an exhausting day, would, after listening to a little music, spend many hours in literary pursuits, "trusting to a change of occupation for relief and amusement" rather than to the rest that was so necessary for him. He set a bad if high example, but one that only the few were likely to follow.

Perhaps his best known work is his Jacksonian Prize Essay, "On the Formation, Constituents, and Extraction of the Urinary Calculus." For this he received the diploma of M.D. from the University of Heidelberg, and the year after was elected F.R.S. The original MS. of this important essay, together with his drawings, are in the library of the Royal College of Surgeons. The work was published in 1841; it had three appendices, one of which contains an exhaustive bibliography of calculi and lithotomy. This alone bears lasting witness to the vast extent of his reading. It contains his portrait, showing a nervous, over-intellectual face. VICTOR G. PLARR.

THE CINEMATOGRAPH.

THE multiplication of "Picture Palaces" must be patent to everyone, but few who have made this observation will know what an immense industry there is behind these small and gaily decorated places of entertainment. The production of a film is a very great business. Thousands of actors and actresses are engaged in the work of production in this and other countries, and an examination of a Stock Exchange list will show what a large amount of capital is employed in these ventures, not taking into account the resources of private firms. Until recently little has been heard of the studio side of the industry, excepting an occasional newspaper paragraph that such and such a firm had produced some wonderful film of many thousand feet necessitating the engagement of some hundreds of actors and the expenditure of thousands of pounds. The statements seem like fairy tales, but they can well be believed when the inside of a good-sized studio is seen. Recently other interests have been added from the medical point of view. Dr. Chappé, writing in the *Annales d'Oculistique* in July, 1920, under the title of "Conjunctivite chez les Artistes du Cinéma," stated that cases had been observed in which exposure to the brilliant artificial illumination of the studios had produced attacks of pain and conjunctivitis of transient duration. An earlier account in a trade journal stated that several members of a film company were affected by semi-blindness,

due, it was stated, to the powerful studio lights. Recently with the introduction of certain new forms of arc lights into this country there have been reports of trouble here. A question was put to the Minister of Health in the House of Commons, and he in reply stated that the matter had been referred to the Committee on the Causes and Prevention of Blindness, now sitting, for observation and report.

On January 18th of the present year a meeting was held by the Society of Illuminating Engineers, at which a paper was read by Mr. J. C. Elvy, A.M.I.E.E., on "Artificial lighting for kinematography." After giving a very interesting sketch of the evolution of the cinematograph, he described the system of illumination now in general use. So long as the photography was conducted in the open air it appears that no difficulties arose so far as the artistes were concerned; later, daylight was supplemented by powerful arc lamps. Nowadays most of the work is done in large enclosed studios in which appropriate scenery is set up. The work itself is done in a three-sided enclosure wider towards the camera than at the back. Masses of lights are arranged at the front on either side of the stage. These may be supplemented by overhead lights, or by lights concealed towards the rear of the stage. When "interiors" are involved light is made to stream through windows or doors from powerful arc lights which are nothing less than searchlights. The total effect is brilliant in the extreme, and this is required by the brevity of exposure necessary to secure a rapid stream of pictures for the film. The qualities aimed at in illuminants for these purposes are summarized as follows: High actinic value with relatively low consumption of energy and small losses in diffusion and reflection; low intrinsic brilliancy; absence of heat or fumes; constancy and steadiness of light. The author stated that "there seemed a general impression that the main source of eyesight trouble in the studios when it occurs, is the exposure to sources of very great intrinsic brilliancy. It is possible that the strong ultra-violet component in some lights, which is highly desirable from the photographic standpoint, may accentuate a tendency to inflammation of the eyes. According to Dr. Chappé, the worst effects did not come on until two or three hours after leaving the studio, a symptom which would suggest ultra-violet irritation.

The influence of the cinematograph display upon the frequenters of the picture theatres was first considered by Mr. Bishop Harman in a paper dealing particularly with children, published four years ago in this JOURNAL.[1] He ascribed the unpleasant effects of the display so far as they affected the eyes to the following conditions: 1, Glare; 2, flicker; 3, rapidity of motion; 4, concentration of attention; 5, duration of exhibition. He also showed that the effects were exaggerated when the observer was badly placed as regards the screen. He recommended that the best protection for the child would be secured by the following provisions: (1) The reasonable illumination of all parts of the hall not directly beside the screen: (2) the improvement of the movement of the film so as to reduce flicker, and the withdrawal of films immediately they are damaged; (3) an improvement in taking the picture so as to bring the rate of motion of the object depicted more nearly to the natural; (4) the increase in the number of intervals in the show; (5) the limitation of shows for children to one hour and the prohibition of repeats; (6) the reservation of the children's seats to the "optimum" position in the hall. With such provisions he did not think the indulgence in a show once a week should do harm to the eyes of a normal child. A little later, Dr. James Kerr contributed a paper dealing with some of the photometric problems of the display.[2]

In 1919 the London County Council requested the Society of Illuminating Engineers to appoint a committee to investigate the possible causes of eye-strain from cinema exhibitions. A joint committee of that Society with representatives of the Council of British Ophthalmologists, the Physiological Society, the cinema industry, and the London County Council was appointed. The committee issued an interim report in June, 1920.[3]

In that report the position of the spectator in relation to the screen is found to be of importance, bad position in a vertical direction (from the screen being too high) being worst. A detailed formula is given for the limitation of these bad positions. Disturbing factors manifest themselves in flicker, due to jerkiness of movement of the pictures; and this is found to be more serious than the physiological flicker manifest to the eye by the keen light sense possessed by the periphery of the retina. Film defects were found to be annoying and were better eliminated, but the committee did not see its way to make recommendations thereon. The County Council had already required a standard illumination of halls whilst pictures are being shown; the committee thought that with improved methods this standard might be increased. The London County Council has now decided that in the case of any new cinematograph halls to be erected in London the recommendations of the Illuminating Engineering Society for preventing eye-strain shall be carried out, and shall also be made effective in existing premises as opportunity offers.

[1] BRITISH MEDICAL JOURNAL, February 17th, 1917, p. 219.
[2] BRITISH MEDICAL JOURNAL, February 24th, 1917, p. 271.
[3] *The Illuminating Engineer*, June, 1920.

PRESENTATION TO DR. J. A. MACDONALD.

THE following further subscriptions have been received from January 25th to February 5th, 1921, in response to the appeal published in the JOURNAL of July 24th, 1920 (p. 129), towards a presentation to Dr. J. A. Macdonald on the occasion of his retirement from the office of Chairman of Council of the British Medical Association which he had held for ten years. Subscriptions of any amount not exceeding five guineas should be made payable to "The Macdonald Presentation," and sent to the Medical Secretary, British Medical Association, 429, Strand, London, W.C.2.

THIRTEENTH LIST OF SUBSCRIBERS.

	£	s.	d.
Brought forward from last list of subscribers ...	857	14	6
Leigh, Dr. W. W., Cowbridge	1	1	0
Per Dr. Taylor, Hon. Sec. Dudley Division:			
Weston, Dr. A. W., Dudley	1	1	0
Young, Dr. T. Brett, Halesowen	1	1	0
Per Dr. J. Hume, Hon. Sec. Perth Branch:			
Watson, Dr. H. F., Perth	1	0	0
Hume, Dr. John, Perth	1	0	0
Stirling, Dr. R., Perth ...	0	10	6
Irvine, Dr. J., Perth ...	0	10	6
Edwards, Dr. J., Perth	0	10	6
Skene, Dr. L. H., M.C., Perth	0	10	6
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Cox, Dr. E. H., D.S.O., Rochdale	1	1	0
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Geddes, Dr. G., Heywood	1	1	0
Harris, Dr. N., Rochdale	1	1	0
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Jefferson, Dr. J. C., Rochdale	1	1	0
Kilroe, Dr. L., Rochdale	1	1	0
Ramsbottom, Dr. H. G., Rochdale	1	1	0
Slack, Dr. J. R., Rochdale	1	1	0
Weir, Dr. John N., Cape of Good Hope	1	1	0
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Andrews, Dr. W. H., Modbury...	1	1	0
Davidson, Dr. W., Plymouth	1	1	0
Fox, Dr. E. H. B., Yealmpton	0	10	6
Glinn, Dr. C. F., Plymouth	1	1	0
Kennedy, Mr. C. M., Plymouth	1	1	0
Lander, Dr. C. L., Stoke	1	1	0
Musgrave, Dr. C. B., Lifton	1	1	0
Olver, Dr. T., Crown Hill	1	1	0
Palmer, Dr. H. B., Plymouth	0	10	0
Scott, Dr. S. Noy, Plymouth (second subscription)	1	1	0
Soltau, Col. A.B., C.M.G., C.B.E., A.M.S. (T.F.), Plymouth	0	10	0
Style, Dr. F. W., South Brent	1	1	0
Thomas, Dr. R. J. P., St. Budeaux	1	1	0
Stocker, Dr. E. G., Plymouth	1	1	0
Twining, Dr. D. O., Salcombe	0	10	6
Vellacott, Mr. H. F., Devonport	1	1	0
Wagner, Dr. R. B., Stoke	0	10	6
Wagner, Dr. R. H., Plymouth ... ... (Mr. Jaques, of Plymouth, had previously subscribed.)	0	10	0
	£894	16	6

AT a recent meeting of members of the North of England Branch of the British Medical Association held at Newcastle-on-Tyne, Dr. James Don, who served as Secretary of the Local Medical War Committee, was presented with a silver tea and coffee service together with a cheque; Dr. James Hudson, who for a time was Chairman of the Committee, received an eight-day chiming clock. The gifts were in acknowledgement of the services rendered to the profession by the recipients in arranging local medical services during the war. Dr. H. Rutter was presented with a gold watch and chain by the doctors on the panel in recognition of his services as secretary of the Panel Committee, and as their representative during the past few years. Subsequently the members present were entertained at supper by Drs. Don, Hudson, and Rutter.

British Medical Journal.

SATURDAY, FEBRUARY 12TH, 1921.

STUDIES OF INFECTED WOUNDS.

IN a special report to the Medical Research Council,* Captain S. R. Douglas, Mr. A. Fleming, and Dr. L. Colebrook describe a series of researches made by them on infected wounds of soldiers under treatment at St. Mary's Hospital during the great war. These studies were in close relation to those of Sir A. E. Wright, who had been actively investigating wound infections at No. 13 General Hospital, Boulogne, since an early stage of the war: the patients investigated at St. Mary's having been selected and forwarded from No. 13 General Hospital for that purpose.

This report is divided into three parts. Part 1 deals with the nature of the cases treated, the methods of treatment employed, and certain conclusions arrived at. Special forms of treatment are referred to, such as the method of skin grafting employed by Steele as long ago as 1870, now revived and modified apparently with great success. Another interesting observation is the effect of spraying a wound with certain aniline dyes such as malachite green or brilliant green in order to promote the growth of epithelium. A particularly successful and useful device employed by the present investigators was adopted by them for the purpose of alleviating the pain occasioned by dressing wounds. The principle, briefly, is to place next to the raw surface of the wound some freely perforated but non-absorbent material. Celluloid was at first employed, but later a still better material was evolved known as "perforated parex protective."

The second portion of the report is devoted to a description of the pathogenic bacteria found in the wounds and to a full account of the characters o these organisms. The point is made in the first place that in case of these war wounds the primary infection is made up largely of faecal bacteria. The micro-organism, however, of chief importance in war wounds is *Streptococcus pyogenes*, which "was present in practically every septic wound and was able to resist the bactericidal action of the body fluids and cells to a much greater degree than any of the other bacteria present. It was this coccus that was responsible for nearly every complication that occurred in the cases during their stay in the wards of the Inoculation Department, the commonest of these being erysipelas, the formation and persistence of sinuses, and also such constitutional symptoms as fever."

A study was made of the cultural and fermentative characters of 160 strains of streptococci present in 30 wounds taken at random. *S. pyogenes* was isolated on one occasion at least from 28 out of the 30 cases, and in 15 of them it was the only streptococcus found. On analysis the 160 strains of streptococcus gave the following results: *S. pyogenes* 118 specimens, *S. salivarius* 10, *S. faecalis* 8, *S. equinus* 5, and *S. anginosus* 2; 17 of these streptococci were unclassified. A special interest attaches to the serological investigation which was made of specimens of *S. pyogenes*. First it was found that all of 24 strains of this streptococcus were agglutinated to approximately the same titre as the particular strain used in preparing the serum. Next it was demonstrated that the mannite-fermenting strain of *S. pyogenes* is of the same serological type as the ordinary strain of this coccus that does not ferment mannite. This identity of the strains of *S. pyogenes* occurring in wounds was established not only by agglutination, but also by absorption tests.

In addition to these studies of streptococci, specimens of diphtheroid bacilli, anaerobes, and *B. proteus* occurring in the wounds were carefully studied and their characters recorded. The frequency of diphtheroid bacilli in wounds is well known, and while the majority of them appear to be of minor significance, there is no doubt that occasionally a true Klebs-Loeffler bacillus is to be found. The present investigators suggest that some of the diphtheroid bacilli present in wounds may be specimens of the acne bacillus. Sixty-one strains of diphtheroid bacilli were investigated very fully and their characters defined. The vast majority of these strains were non-pathogenic to the guinea-pig; from four wounds, however, a bacillus was isolated that could not be distinguished from *B. diphtheriae* in pathogenic or other respects. The patients from whom these cultures of virulent diphtheria bacilli were isolated showed no clinical signs of such infection, no formation of membrane, and no constitutional disturbance. The work done on the anaerobic bacilli is a valuable supplement to that of the Anaerobic Committee, and the St. Mary's Hospital observers describe and name several new forms of these bacteria which they isolated from wounds.

The third part of this report contains a series of experimental studies of the interaction between the wounded tissues of the patient and the infecting bacteria in the presence of various antiseptics. It will hardly be disputed that the valuable and sustained researches of Wright and his colleagues at St. Mary's during the years that preceded the war, on the finer processes of immunity and phagocytosis, fitted them better, perhaps, than any other group of workers in Europe or elsewhere to undertake this particular line of war research. For this reason the present report of these investigators should be read, if possible, by all of those interested in the healing of septic wounds. That some progress has been made with regard to our understanding of the healing process is clear, but that anything approaching finality has yet been reached is open to doubt. Antiseptics of all the kinds investigated would appear to be of little or no value as such when tested *in vivo* by the methods described in the report. We could wish that at a future date the Medical Research Council would issue in a compact form an account of the completed work of Sir Almroth Wright and his colleagues on the biology of infected wounds. If to this volume there were to be prefixed a summary of the state of knowledge on this subject before the war began, it would be of great help both in raising appreciation of the ingenious and highly adaptable technique which is such an outstanding feature of the St. Mary's school, and also in facilitating assessment of the progress actually made towards solution of a problem of cardinal importance to the surgeon in peace as in war

* Medical Research Council. Special Report No. 57. Studies in Wound Infections. By Captain S. R. Douglas, M.R.C.S., A. Fleming, F.R.C.S., and L. Colebrook, M.B. H.M. Stationery Office. 1920. 4s. 6d. net.

THE MILK SUPPLY.

IF beer and other alcoholic beverages were produced under the same insanitary and unsavoury conditions as those which are associated with the production of a large quantity of the milk consumed in this country the task of those who are anxious to persuade the nation to "go dry" would be very much simplified. The reports of medical officers of health and other officials in pre-war days made us familiar with dark and unventilated cowsheds, the walls and floors of which were in a foul state, with fold-yards so choked with manure that the cows had to plunge through it in order to enter the sheds to be milked, their udders trailing in the filth, and we were told of dairy farms with inadequate water supplies, resulting in uncleanly utensils and unwashed hands of milkers.

The vigorous propaganda that has been carried on for the last ten or fifteen years has left the dairy farmer no excuse for continuing his lax practices. It has had a considerable effect on the more public spirited owners and farmers; scattered up and down the country to-day are many dairy farms which may at least serve as models. Nevertheless, the position generally is that stated by Lieut.-Colonel Brittlebank, of the Public Health Department of the Manchester Corporation, in his report to Dr. James Niven, the medical officer of health, for 1919: "My impression," he says, "on visiting some of the country farms was that, so far as cleanliness was concerned, we were very much in the same position as we were fifteen years ago. The cowsheds were dirty and the cows were in a general state of filth." For years past public health reformers have been crying out for amendments in obvious directions, but to very little purpose, though in April last the Ministry of Agriculture and Fisheries was constrained to issue a Memorandum in which it was stated that there was an abundance of evidence in support of the contention that the milk supply on reaching the large consuming centres was too highly charged with dirt and bacterial life.

The trade of a dairyman and cowkeeper is regulated by the Dairies, Cowsheds, and Milkshops Order, 1885, and the amending Orders of 1886 and 1899, and Regulations which may be made under the provisions of those Orders. The authorities charged with their administration are the urban and rural district councils, the members of which, as regards the rural councils, are largely drawn from the dairy farmers themselves, so that it can hardly be expected they should display much enthusiasm in enforcing regulations which necessitate any very considerable outlay. Indeed, many rural authorities refuse even to make regulations, and the supervision carried out is either absent or wholly inadequate.

It is a strange commentary upon the manner in which our great central departments are conducted that whereas the Ministry of Health and the Ministry of Agriculture and Fisheries appear to have failed in effecting reforms there should have come to their assistance a subcommittee appointed under Profiteering Acts. In January of 1920 this subcommittee was deputed to "investigate the question of trusts, combines, agreements, and other conditions affecting prices in connexion with the milk trade, including milk products so far as they relate to the consumer in this country." This Committee has just reported, and it is satisfactory to find it stating that recent large combinations of milk distributors have not dealt unfairly with either the producer or consumer and that large economies have been effected by the combinations. The most important conclusion, however, is "that there is still ample room for improvement in the methods of dealing with milk at all stages, both from an economical point of view and also having regard to the health of the nation. We recommend that all milk should be delivered in bottles. In order that this may be accomplished, we consider that either some form of combination amongst the distributors is inevitable, or municipalities should be empowered to undertake the distribution."

Hitherto attempts at municipalizing milk supplies have not met with success. Whether such an enterprise would tend to lower the price of the commodity is more than doubtful, but it might be expected that the conditions of production would be improved as compared with the general farming standard as it exists to-day. The unsatisfactory administration of the laws regulating the supply of milk generally applies with equal force when the question of the distribution of milk from tuberculous cattle is considered. The Dairies, Cowsheds, and Milkshops Orders, which are operative throughout England and Wales, prohibit the sale or use for human food of milk from a cow which is certified by a veterinary surgeon to be suffering from tuberculous disease of the udder. What have come to be known as the Manchester Milk Clauses because they were contained in the Manchester General Powers Act, 1899, have been incorporated in several other private Acts—for example, in the Liverpool Corporation Act, 1900. These clauses prohibit, under a penalty, the sale of milk from a cow known to be suffering from tuberculosis of the udder. They also enable supplies of milk to be followed up to the dairy farm itself wherever it may be situated, and gives power, if found necessary, to prohibit the supply of milk from the farm. In Manchester during 1919, in 20 out of 351 samples of mixed milk examined tubercle bacilli were found. During the consequent visits of inspection 13 cows were definitely proved by bacteriological examination to be suffering from tuberculosis of the udder. Ten of these cows were slaughtered under direct supervision, and in all cases the carcasses were found to be unfit for human consumption and were condemned.

CREMATION IN ENGLAND.

AMONG the enlightened classes opinion is steadily growing in favour of cremation; but among the community at large sentiment and prejudice still stand in the way of a general resort to this means of disposal of the dead. It is possible, however, that the acute shortage of land accommodation—for the dead as well as for the living—in the neighbourhood of all populous centres may bring the claims of cremation into greater prominence, and so induce public authorities to increase the facilities. It might happen that with a larger number of crematoria in various parts of the kingdom demand would keep pace with supply, for the cost of transporting a body by rail is at present prohibitive to persons of ordinary means, and this is a factor favouring earth burial, at any rate in country districts. Extracts sent us in advance from the report of the Cremation Society of England indicate that during the past year some 1,800 cremations were carried out in this country, and of these nearly one-half took place at Golders Green. In no instance, it is stated, was there any reason to doubt the cause or the fact of death, so efficient is the working of the precautions laid down by the Act passed by Parliament for this purpose. For nearly half a century the Cremation Society has carried on its valuable work. It has striven to overcome opposition and prejudice by practically demonstrating its objects, unaided by the State, and imposing no burden upon local rates, but mainly

from funds provided in the first instance by a few public spirited supporters. Since the opening of the Woking crematorium in 1885 nearly 23,500 bodies have been cremated in Great Britain. In addition to the crematoria at Golders Green, Woking and Norwood, there are others in Manchester, Glasgow, Birmingham, Liverpool, Sheffield, Leicester, Hull, Leeds, Bradford, Ilford and Darlington. The Cremation Society has this year inaugurated a scheme of free registration, enabling those who prefer cremation to record during lifetime their wish for this method of disposal at death. Information may be obtained from the Secretary, 52, New Cavendish Street, W. By enlisting the co-operation of a wider circle of living adherents the Society hopes to secure in time the abolition of earth burial, with its danger to health and its waste of money, labour and land. In the United States progress has been more satisfactory. According to the new *Hazell Annual and Almanack* there were in 1919 in the United States 79 crematoria. In that year 12,372 bodies were cremated, which was more than in 1916 but very much less than in 1918, when for some reason all previous records were far surpassed.

VITAMINES.

THE current number of the *Biochemical Journal* contains a number of papers dealing with conditions which determine the presence of vitamines and bring about their diminution or destruction in the course of the preparation of food for the table. Professor Gowland Hopkins points out that a knowledge of the conditions affecting the stability of vitamines is not only of practical importance in connexion with the commercial and domestic treatment of food, but would also be of value in guiding attempts to isolate them, and in limiting hypotheses as to their nature. Many investigations made during recent years of the fat-soluble A vitamine have shown that animal fats, with the exception of lard, are decidedly richer in it than vegetable oils. Conflicting statements have been made as to the resistance of this vitamine to heat. Some experimenters have concluded that it is thus readily destroyed, but in his paper opening the discussion in the Section of Medicine at the annual meeting at Cambridge,[1] Professor Hopkins confirmed the statement of Osborne and Mendel that it is resistant to heat. The explanation of the difference of opinion, he states, is that while the vitamine in butter is not diminished by exposure to a temperature of 120° C. for four hours, it is within the same period greatly diminished and in twelve hours altogether destroyed if the butter is thoroughly aërated during the heating. Drummond and Coward now give an account of an experiment which led them to the same conclusion. The probability is that the destruction of the vitamine is due to oxidation, and this appears to be confirmed by Hopkins's observation that vitamine A disappears from butter spread in thin layers and exposed to air at temperatures of 15° to 25° C.; Drummond and Coward found that the loss was considerable at 37° C. Lard, as has been said, has been looked upon as an exception to the rule that animal fats contain vitamine A. This seems to be due not to the complete absence of vitamine from the body fat in pigs, but to two circumstances—first, that the diet usually employed to fatten pigs is not rich in vitamine A, and, secondly, that in the process of manufacturing lard, which involves raising the fat to a temperature of 102° C., much of any vitamine A there may be must be destroyed. Drummond, Golding, Zilva, and Coward relate an instructive experiment made on a litter of Berkshire pigs. For the present purpose it will be sufficient to say that it demonstrated storage of vitamine A in the body fat of pigs receiving a diet containing considerable amounts of vitamine A, yielded, in this instance, by fresh grass. The fat of the pig, probably because the animal fattens quickly, contains less vitamine A than that of other animals, and when a young pig is fed on a diet very deficient in vitamine A, such as toppings and whey, it may not be possible to detect that vitamine in the body fat. An interesting point as to the value of milk in maintaining growth is discussed in another article by Professor Hopkins; in one of his earlier papers on accessory food factors (1912) he had described the startlingly favourable effect of adding minute amounts of milk to synthetic dietaries incapable by themselves of maintaining the growth of rats. Experiments made later by Drummond and by Osborne and Mendel failed to yield the same results, and those made by Hopkins himself in the winter of 1919 were disappointing, for though the animals who received the small quantity of milk kept in better health and lived longer than those on a synthetic diet alone, they grew very slowly and their death rate was high. In another set of experiments which he began in April and May the contrast between animals receiving the small quantities of milk and the others who received none was as marked as in his earlier experiments. The difference in the diet of cows in summer and winter suggests itself as a probable explanation, and McCarrison has in our columns laid stress on this point. Osborne and Mendel, however, were unable to show that this factor influenced their results, and an experiment Professor Hopkins made with goats gave no support to the theory. There is seasonal variation in the growth of energy of rats, but Professor Hopkins doubts whether this would account for the experimental difference, and regards the question as still open.

[1] BRITISH MEDICAL JOURNAL, July 31st, 1920, p. 147.

HOME SERVICE AMBULANCES.

THE Home Service Ambulance Committee of the Joint Council of the British Red Cross Society and the Order of St. John has prepared a report of its work down to the end of last year. The object with which it was formed, shortly after the Armistice, was to establish a motor ambulance service in England, Wales, and Ireland, which would afford means for rapidly and easily conveying the sick and disabled, especially those in rural areas, to a hospital or other institution for treatment. Ambulances which had been in use in France during the war were overhauled and the most suitable put into a state of repair. In April, 1919, a circular letter was addressed to county directors inviting them to apply for such number of motor ambulances on loan as would meet the needs of the county, the suggestion being that the ambulance garages should be approximately thirty miles apart, so that there would always be one not more than fifteen miles from a patient. The distribution of ambulances began on May 24th, 1919, and by the end of that year 238 had been stationed; by the end of last year the number had been increased to 273. During the first twelve months of the Committee's work the total number of cases carried in the ambulances was only 5,227; three months later this was increased to 22,409, and at the end of 1920 the total number carried had risen to 38,260. Poor Law cases are conveyed at the cost of the local authority, but there are many patients whose circumstances are such that the charge for the use of the ambulance must be partly or entirely remitted. Nevertheless, in many counties the receipts have been sufficient to cover the cost of the service. The home ambulance service has become an established institution. The military ambulances originally issued are being replaced by a lighter type. The light ambulances have room for two stretchers only instead of four, but in practice this has not been found disadvantageous. The running cost of the lighter ambulance is approximately 50 per cent. lower than that of the heavy type. It has not yet been possible to supply all the ambulances the Committee has agreed to allot, but arrears are being rapidly overtaken. The number in each county of course varies with the area and with the character of the population. Durham and Essex have twelve at work; Kent, which asked for twenty, has been allotted twelve, and has ten in use. The West

Riding of Yorkshire is to have twelve, and has now eleven at work; the agricultural East Riding asked for five, and has three at work. The Committee is satisfied with the success achieved during the last twelve months. It is recognized that the variation in the work done in different counties is not always in due proportion to the real needs, but it is hoped that as the scheme becomes better known the use of the ambulances will grow.

MALARIAL PREVENTION.

DR. C. F. LASSALLE'S report[1] on an anopheles survey of the colony of Trinidad and Tobago furnishes interesting reading. Carried out with great care and accuracy, it should form a standard for work of this nature. It deals fully with all the known methods for destroying and keeping down anopheles, and it points out that many of the recommendations can be carried out efficiently by a small sanitary gang working under the direction of the sanitary inspector of the district concerned. In his conclusions he quotes a passage from Hoffman which is worthy of note: "Rural sanitation and malaria prevention are practically synonymous or equivalent terms and the one, broadly speaking, cannot be achieved without the other. Malaria prevention, to be permanently successful, however, requires the most complete co-ordination of governmental, corporate, and private functions and efforts to the same extent to which this has been the case in Panama, where practically the whole population has been brought under most perfect sanitary control." People nowadays look at the subject of malaria prevention in a much more common-sense manner than they used to, and of course no scientist dreams of exterminating the whole of the mosquitos of an island or other area, though this is what the laity still imagine. Dr. Lassalle refers to this in his report and shows how such ideas retard progress and make the lot of the sanitarian a hard one. Still the new ideas are gradually creeping in, even outside the entomological and medical worlds, and the progress which has already been made should soon be multiplied indefinitely. Those interested in the subject should certainly read Dr. Lassalle's report.

THE TEACHING OF THE MECHANISM OF LABOUR.

THERE are certain subjects in the medical curriculum that are traditionally regarded as stumbling-blocks to the student, and expected to prove such to each generation in succession. How far this expectation on the part of the teacher is father to realization on the part of the taught may be a matter for speculation, but the general effect is detrimental. Amongst such subjects the mechanism of labour has always held a place, and many are the students who would class it along with the better known *pons asinorum* of earlier days. Any plan for the simplification of the teaching of mechanisms without sacrificing scientific accuracy should therefore be welcomed by all teachers, and this is the reason why we would draw attention to an article in the *Indian Medical Gazette* of September, 1920. The writer is Lieut.-Colonel A. Buchanan, I.M.S., lately Superintendent of the Robertson Medical School, Nagpur, and he writes not as an obstetrician, but as one whose main interest is to simplify as far as possible the studies of the students under his educational guardianship. Possibly it is just because he is not an obstetrician that there is a certain freshness of outlook in Colonel Buchanan's method of approaching the subject. At the same time the novelty is essentially in the method of demonstration; the cause of the constituent movements of the head mechanism is not explained. In our view it would be a mistake to regard the author's work as a valid argument for recasting Naegele's teaching as to presentations and positions. Colonel Buchanan points out that the foetal head, looked at from the side, resembles a semicircle with the occipito-mental diameter as its base. The centre of this half-circle, a point which he calls J, nearly corresponds to the cranio-vertebral junction, and may therefore be regarded as the pivot round which the head "circulates" in flexion or extension. Similarly, a vertical mesial section of the pelvis may be likened to a quadrant of a circle with its centre, P, at or near the subpubic angle. He uses models constructed on these lines to represent the head and the pelvis, and to the centre of the base of the head he attaches a wedge to represent the trunk. The problem is now to pass the semicircle through the quadrant, and the writer shows how an easy passage is only possible when the centre of the base of the head is close to the centre of the quadrant of the pelvis. When this is the case, a radius of the head passes through the pelvis instead of a diameter. In parturition the pivotal point of the base of the head is close to the centre of the pelvic quadrant in occipito-anterior vertex cases where flexion is adequate, in mento-anterior face cases where extension is adequate, and in the case of the after-coming head where the back of the neck is under the symphysis. In all of these the semicircle of the head circulates round the symphysis easily, just as a bicycle wheel circulates within its mudguard, because the two are centred upon the same axle. Contrariwise, when the pivotal point of the base of the head is far distant from the centre of the pelvic quadrant there is difficulty in the passage of the head, as is instanced in persistent occipito-posterior cases and persistent mento-posteriors. The models, which we understand are to be had from the Medical Supply Association, Gray's Inn Road, are ingenious, and calculated to be helpful in making quite clear points which it is not easy to describe in writing with complete lucidity. In addition to the features mentioned, the models may be used to show the essential sameness of the objects of flexion in occipito-anterior vertex cases, and of extension in mento-anterior face cases, as well as how premature extension of the head is apt to lead to rupture of the perineum. Those who are interested in this most praiseworthy attempt to simplify a troublesome subject will do well to read the short original article in our contemporary.

DIABETES INSIPIDUS AND THE PITUITARY.

A STRIKING practical outcome of the great volume of physiological, pathological, and clinical work that has accumulated for many years in connexion with the pituitary is that after injections of pituitary extract the polyuria of diabetes insipidus of hypophyseal origin disappears for about twelve hours; by repeated injections of the extract the patients can thus be given a respite, particularly at night, from the otherwise constant disturbance involved by the polyuria. This therapeutic effect, first pointed out by Farini in 1913, and copiously illustrated in a paper read last year at New Orleans by Professor Lewellys Barker of Baltimore, has been thought to rival that of thyroid extract in myxœdema, but the effect is not only more transient but much more rapid in its onset; thus, an hour after the administration of 1 c.cm. of the extract of the posterior lobe it is impossible to distinguish the urine of a patient with diabetes insipidus from that of a normal person. It is difficult even now to explain satisfactorily the mechanism of this therapeutic success, for the physiological effect of extracts of the posterior lobe and pars intermedia, the cells of which are concerned with the excretion of water, has usually been found to be diuresis; and, conversely, as long ago as 1911, Professor Harvey Cushing pointed out the difficulty of harmonizing the diuresis that may accompany hypopituitarism with the *a priori* expectation that individuals with this glandular insufficiency would show a lowered urinary output. In a critical review of hypophyseal polyuria, based on 117 cases, of which 5 are

[1] *Report on Anopheles Survey of the Colony of Trinidad and Tobago.* By C. F. Lassalle, M.D., D.P.H., Deputy Surgeon-General and Medical Inspector of Health. Trinidad: Printed at the Government Printing Office, Port of Spain. 1920.

original, Schulmann and Desoutter[1] have gone over the whole subject, and comparatively recently Drs. Kennaway and Mottram[2] have provided a valuable abstract of the literature. The predominance of males—64 per cent.—among the French observers' cases is thought to be possibly due to the influence of syphilis, and cases of cure after antiluetic treatment are given. The usually accepted pituitary origin of diabetes insipidus has been disputed by Camus and Roussy on the grounds that they produced it by puncture of the base of the brain, near the corpora mammillaria, and that pituitary extract has not any specific curative action apart from the fall of blood pressure and vomiting induced by its sudden entry into the veins. This divergence of opinion is discussed in both the reviews, and Drs. Kennaway and Mottram suggest that the polyuria following experimental injury of the base of the brain is due to escape of pituitary secretion into the cerebral substance, there being some evidence that pituitary extract can produce both antidiuretic and diuretic effects from the presence of two substances. The antidiuretic effect of pituitary extract, thus shown in the treatment of diabetes insipidus, appears to be due to the direct action on the kidney and not to depend on diminished absorption of water from the intestines. In order to obtain this antidiuretic effect the drug should be given hypodermically, administration by the mouth being unsuccessful unless the fresh gland is given in large quantities, ten to twenty times that necessary in hypodermic injection. The French observers tabulate various clinical forms of pituitary polyuria, and in those associated with Fröhlich's adiposo-genital syndrome, Dercum's disease, and infantilism, both sets of clinical manifestations were relieved by pituitary injections; they draw a distinction between pituitary and other forms of polyuria, and state that in the former the renal permeability is normal, except for water, in regard to which it is exaggerated. Failure of response to pituitary medication may be due to the nature of the preparation, the anterior lobe of hypophysis being inert in this respect.

DIURNAL CHANGES IN THE SIZE OF RED BLOOD CELLS.

DR. CECIL PRICE-JONES, ten years ago, described in the pages of this JOURNAL[3] his method of measuring the variations in diameter of the red blood cells by projecting the image of the microscopic field on to a table by the aid of a camera obscura, the apparatus being adjusted for a magnification of 1,000 diameters, so that the cells might be measured with a millimetre scale and expressed in terms of fractions of μ. He has now applied his method for the purpose of endeavouring to explain the considerable variation in the mean diameter of the red cells in the healthy person, adhering to one chosen method of preparing the blood films for the purpose of comparison, as it was found that alterations in the fixing and staining reagents produced changes in the mean diameters of the red cells. The result of his researches has been published in an interesting article in the December number of the quarterly *Journal of Pathology and Bacteriology*. That there is a diurnal variation in the diameters of red cells—namely, a gradual increase during the day and a diminution during sleep—appears from tables which show three sets of observations taken by Dr. Price-Jones during ordinary working days, the first film in the morning being taken immediately on waking. The variations are striking; they amount in some cases to as much as 0.6 μ, suggesting that the red cells swell and shrink in association with bodily activity. For example, in one series a quick rise of 0.46 μ between 8.20 and 9.20 a.m. was recorded after a short push-bicycle ride with a trailer. By experiment it was found that (*a*) violent exercise—for example, the investigator ran as quickly as he could up and down six flights of steps three times, until he felt unable to run any more and was distressed in breathing—increased these changes; (*b*) gentle exercise—an eight mile walk on a fresh morning—had no apparent influence; and (*c*) rest in bed—for twenty-four hours, for example, spent in reading, with usual meals—did not abolish these diurnal variations. The facts obtainable from the observations suggested to Dr. Price-Jones that the variations in size of the red cells were due to differences in the reaction of the blood. Experiments *in vitro* showed that the red cells swelled with an increase of acidity, and shrank when the blood was made abnormally alkaline. Several simultaneous determinations of blood reaction and red cell diameters made by the investigator on himself, before and after short violent exercise, showed in each case that an increase in diameter was associated with a diminution in alkalinity. It is already known that at the moment of first awakening in the morning the blood is a good deal more alkaline than later on during the day; and while the kidney produces an acid urine during the night, in the morning it tends to become alkaline, presumably so that the blood may be more alkaline during the night and less alkaline during the day. Taking the work of previous investigators into account, the experiments and observations of Dr. Price-Jones appear to show, therefore, that the diurnal variation in the diameter of red blood cells is presumably due to the altered reactions of the blood; but whether the diminished alkalinity and increased diameters which prevail during the active part of the day are due to accumulations of CO_2, or lactic acid, or to some other source of altered reaction, we have at present no means of judging.

[1] *Rev. de Méd.*, Paris, 1920, xxxvii, 441-466, 521-532.
[2] *Quart. Journ. Med.*, Oxford, 1918-1919, xii, 226-258.
[3] BRITISH MEDICAL JOURNAL, 1910, vol. ii, p. 1418.

POST-GRADUATE INSTRUCTION IN PARIS.

EVEN if the tradition that it had its beginnings in the time of Charlemagne be rejected there can be little doubt that the Medical School of Paris is the oldest existing. A faculty of medicine was instituted in 1270; it formed part of the university, was dependent on the faculty of arts, and was subject to ecclesiastical authority. The medical faculty subsequently became independent, but the influence of the old association was shown in the rule, only abrogated in 1452, that the doctor of medicine should be celibate. For a time the Academy of Surgery was a rival institution, but both were suppressed during the revolution (1792), and replaced in 1794 by a single École de Santé. This school developed rapidly; the whole system of medical education was reorganized, and clinical courses were established in three hospitals specially equipped for the purpose. In 1808 the school became once more the Faculté de Médecine. The medical curriculum now extends to five years, and the State diploma, which alone gives the right to practise in France, is granted only to candidates who have passed through the whole medical course in Paris. Foreign practitioners can obtain, by examination, the diploma M.D. of the University of Paris, but this is a purely scientific distinction. Many of the professors in the faculty have arranged post-graduate courses; such courses will be given this spring in pathology, bacteriology, parasitology and pharmacology. During the summer and autumn there will be special clinical courses in many of the hospitals. Permission to work in the research laboratories attached to the various chairs is granted to suitable applicants at the discretion of the professor. Practical courses in bacteriology, physiology and biological chemistry are given at the Pasteur Institute, and here again suitable applicants may obtain permission to work in the research laboratories. The Institute, it will be remembered, possesses its own hospital for the treatment of infectious diseases. Paris possesses also the Institut Marey, which is fitted with all the apparatus for the study of movement by the graphic method; it is

administered by an international commission. A Société des Amis de la Faculté de Médecine de l'Université de Paris has been formed to help it in various ways, especially by aiding in the improvement of its equipment and its research laboratories, and, by making French medicine better known abroad, to contribute to the advancement of medical science. This society has recently issued a pamphlet giving full particulars about the facilities afforded in Paris for medical and post-graduate education. Further information can, we understand, be obtained from M. Masson, Treasurer of the Society, 120, Boulevard Saint Germain, Paris.

THE COMING PARLIAMENTARY SESSION.

OUR Lobby Correspondent writes: The new session of Parliament will be opened by the King in state on Tuesday next, February 15th. The date is later than usual, and, Easter falling earlier than ordinarily, financial votes are likely to take up most of the time before the first recess. The Government's intention is to limit the legislative programme as much as may be, both for the sake of economy and to avoid autumn sittings. Pledges already given and necessary demands must, however, involve a large amount of business, and it is highly probable that members may show more controversial spirit as the period for a dissolution approaches and constituents have again to be met. The idea of a general election before 1922 is now generally discounted, although circumstances might bring it about sooner than is contemplated. The problem most affecting it will be the passage of a bill for the reform of the House of Lords. Whether this can be achieved by the end of the present session is doubtful; but a measure is promised, and after it has been placed on the statute book a general election will be required within a few months, as the constitution of Parliament will have been changed. Political prophets incline to the belief that this will happen in the spring of next year. Before that reform is attempted a number of other measures have to be faced. Prominent amongst these will be a bill to safeguard key industries, which may also tackle dumping, though that question may be taken up separately. A promise has been given for the reform of the Poor Law, to carry with it the ending of the workhouse system; but that, again, is a big matter which cannot be dealt with rapidly. Licensing legislation presents the same difficulty of needing a good deal of time for careful treatment. More urgent is a bill to clear up affairs in the hands of the Ministry of Transport—a department whose future will depend upon the policy to be determined within the session. The Ministry of Health alone has enough legislative work before it to occupy many contentious weeks in the House of Commons. Apart from the promise, as yet unfulfilled, to bring in a Poor Law Bill there are a host of matters to be proceeded with. First of all comes the question whether the Ministry of Health (Miscellaneous Provisions) Bill, rejected by the House of Lords at the end of last session, is to be reintroduced in the same form. The intention of the Cabinet in December was that this should be done, but there are strong arguments for separating the different proposals which, united in one bill, tended to form such a strong combination of critics against the bill as a whole. It seems quite possible, therefore, that the clause for providing a subsidy for house building may be detached, and that the clauses touching hospitals and homes for the treatment of incipient mental disease may be put into a single measure. No difficulty should be experienced in passing the Tuberculosis Bill, introduced last session, which is designed to transfer the exercise of powers from the Insurance Committees to local authorities, with the grant of certain additional powers to the latter bodies. The Patent Medicines Bill, which was carried to the Report stage in the House of Lords, will, it is hoped, be introduced in the House of Commons as a more or less agreed measure; and the same remark applies to the Dentists Bill, which was framed on the report of a Select Committee. It is interesting to learn that the valuations of the friendly societies for health insurance are coming out favourably; they are not yet completed, but a large number of the returns to hand show a surplus, and the problem will arise how this is to be applied in increased benefits. Amongst the objects to which it might be devoted are dental treatment, convalescent homes, and, possibly, some allowance for treatment of insured persons in hospitals, which might render a little help towards the solution of the hospital problem. The Committee on Hospital Finance, of which Lord Cave is chairman, is meeting twice a week, and is making good progress in taking evidence.

RED CROSS WAR MEDAL.

THE British Red Cross Society has struck a medal for presentation to those of its many war workers who have received no British decoration or medal. Among those entitled to receive it are all members of the society or its voluntary aid detachments who during the war gave a minimum unpaid service at home or abroad of not less than a thousand hours. In the case of ambulance drivers and bearers the minimum number of hours is five hundred. For air raid duty, in the course of which great personal danger was often incurred, there is no fixed minimum period of service, and the Red Cross county presidents will nominate for the medal in their discretion. The medal, which is in gilt with a white ribbed-silk ribbon, is the only one ever issued by the British Red Cross Society. Engraved on the obverse is the well-known symbol, with the words, "For war service, 1914–1918," while the reverse bears the Red Cross motto, "Inter arma caritas." Forms of application can be obtained from the Secretary, British Red Cross Society, 19, Berkeley Street, W.1. Envelopes should be marked "B.R.C.S. Medal." We understand that those entitled to the medal will include medical practitioners who gave gratuitous Red Cross service during the war and have received no British award. The expression "during the war" means the period from August 4th, 1914, to December 31st, 1919.

DANGEROUS DRUGS REGULATIONS.

IN the JOURNAL of January 15th we announced the issue by the Home Secretary, under Section 7 of the Dangerous Drugs Act, 1920, of draft Regulations of a most drastic nature for the control of dealings in morphine, cocaine, ecgonine, diamorphine (heroin), and their respective salts, as well as in medicinal opium and in preparations containing not less than one-fifth per cent. of morphine or one-tenth per cent. of cocaine, ecgonine, or diamorphine. That the medical profession would be hampered by them in its legitimate use of these drugs was recognized by the Medico-Political Committee of the British Medical Association, and a protest, on general grounds, was at once made to the Home Office. Since then detailed representations have been drawn up and embodied in a memorandum submitted on February 3rd to the Home Secretary. This memorandum, together with the accompanying letter forwarded by the Medical Secretary, is printed in full in the SUPPLEMENT this week. The matter is one that concerns not only those medical practitioners who dispense their own medicines, but every practising member of the profession. We are all agreed as to the need for restricting, so far as is reasonable, the purchase and sale of habit-forming drugs; but there is a limit to what can be asked of busy practitioners. The official reply to the Association's memorandum has not yet been received, but in the meanwhile a statement by Sir Edward Troup, permanent Under-Secretary of State in the Home Office, has appeared in the *Times*. He emphasizes the point that the Regulations have not yet been made, and indicates several respects in which the draft seems to have been misunderstood. The Regulations, he explains, have been issued in draft

in pursuance of the Rules Publication Act, 1893, in order that all persons and bodies interested may have an opportunity of considering them and submitting any representations or suggestions before they are finally made; and he adds that all such representations or suggestions will be carefully considered. The medical profession will welcome also Sir Edward Troup's assurance that a doctor will not have to enter the fact in a book whenever he gives a hypodermic injection of morphine or otherwise administers any of these drugs. "The Regulations require certain records to be kept in cases where drugs are *supplied*, and these apply to doctors who supply medicines to their patients, as well as to chemists who supply them on a doctor's prescription. But there is no requirement that a record has to be kept of a personal administration of the drugs by a doctor." Consultation with the British Medical Association before the Regulations were drafted might, among other benefits, have prevented any misapprehension as to the exact meaning the official mind attaches to the verb "supply."

OXFORD OPHTHALMOLOGICAL CONGRESS.

THE Oxford Ophthalmological Congress will assemble at Keble College, Oxford, on the evening of Wednesday, July 6th next, and the meeting will be held on July 7th and 8th, with an extension to the morning of Saturday, July 9th, if needed. On July 7th a discussion on "The causes of infection after extraction of senile cataract" will be opened by Dr. Victor Morax of Paris. The Congress dinner will take place on July 7th, in the Hall of Keble College, and the Doyne Memorial Lecture will be delivered on the following morning by Dr. Ernest E. Maddox on "Heterophoria." Those wishing to contribute papers, pathological specimens, new operations, cases, or novelties, are asked to notify the Honorary Secretary, Mr. Bernard Cridland, Salisbury House, Wolverhampton.

RAT EXTERMINATION.

AN example of what can be done by the well-directed energy of a comparatively few enthusiasts, concentrating on one piece of work and doing that well, is shown by the results achieved by the Incorporated Vermin Repression Society, the annual dinner of which was held in London on February 8th. This society was the means of pushing the Rat Bill through Parliament, and after that useful object had been achieved it would have been wound up but for the fact that the Ministry of Agriculture urged the society to remain in existence to encourage its special propaganda. At the annual dinner, Sir Bruce Bruce-Porter, who was in the chair, gave figures of the enormous destruction effected annually by rats, and suggested that the Boy Scouts' organization might take up ratting as part of its work, pitting the brain of the scout against the nimble brain of the rat. Professor W. J. R. Simpson spoke on the rat as a carrier of disease, and Professor F. Hobday and others spoke from the agricultural and other points of view. Mr. Alfred Moore, the indefatigable honorary secretary, to whom much of the success of the society is due, mentioned that the society was going to offer its gold medal for the best rat virus that should prove harmless to human beings.

THE Conference of the International Union against Tuberculosis is being arranged by the National Association for the Prevention of Tuberculosis, 20, Hanover Square, London, W.1, and will be held in London from July 26th to 28th. Delegates from about twenty-five countries will attend and take part in the proceedings. Professor Calmette will open a discussion on the modes of diffusion of tuberculosis throughout the races of the world, and there will be three public addresses, given by a Frenchman, an American, and an Englishman. Visits to tuberculosis hospitals, sanatoriums, and laboratories will be arranged.

England and Wales.

PRESENTATION TO SIR ROBERT JONES.

ON January 31st, at the Adelphi Hotel, Liverpool, Major-General Sir Robert Jones was the guest at a dinner, with the Earl of Derby in the chair, on the occasion of the presentation of his portrait, subscribed for by the committee and staff of the Royal Southern Hospital, Liverpool. The portrait shows Sir Robert in the uniform of a major-general A.M.S., and was painted by the well known Liverpool artist, Mr. R. E. Morrison. Former residents and others had come from all parts of the country to be present, and among the apologies were those of Sir Anthony Bowlby, President of the Royal College of Surgeons, and the Bishop of Liverpool. In proposing the toast of "The Guest," Lord Derby spoke in appreciation of what Sir Robert Jones had done, not only during the war, but before the war. He had first known him in connexion with his work for crippled children, and he could never forget the shout of delight of those children when Sir Robert went into a ward once with himself, when visiting the Children's Hospital at Heswall. He described the magnificent work which had been done by Sir Robert Jones during the war in organizing throughout the country that particular branch of surgery which he had made his own. There were thousands of men, he said, at the present moment who were blessing the name of Sir Robert Jones for all that he had done for them. He was not only respected and esteemed as a great surgeon, but he was loved as a friend. Mr. G. P. Newbolt, senior surgeon to the Royal Southern Hospital, supporting the toast in an amusing speech, said that Sir Robert Jones was one of his oldest friends; they had worked together as young men at the Stanley Hospital, and as consulting surgeons for the Manchester Ship Canal works. In 1891, the year in which Sir Robert was appointed surgeon to the Southern Hospital, Owen Thomas died, and the full brunt of that surgical practice fell upon him. His reputation began to grow both on the Continent and in America, and his work in the war only added to an already great name. The toast was accorded with musical honours. Then Lord Derby unveiled the portrait, and in asking Sir Robert Jones to accept it said that Sir Robert would take this portrait away with him, but his friends would ever retain in their hearts a portrait no artist could reproduce.

Sir Robert Jones, in his reply, referred to the help and encouragement he had received from the chairman, when Minister for War, in his work in the military hospitals, especially in the creation of the curative workshops which had proved of so much value. He himself had but endeavoured to apply those surgical principles which had their birthplace in Liverpool, to the treatment of wounded soldiers at home and abroad. Those principles were associated with the name of Hugh Owen Thomas, the application of whose knee splint in the firing line had certainly reduced the mortality of compound fractures of the thigh in the war from 80 to 20 per cent. The first orthopaedic centre which he was asked to organize was opened at Alder Hey, near Liverpool, and the centres rapidly developed over the British Isles until nearly 30,000 beds were occupied. The knowledge gained should prove of immense value to the accidents in industrial life, and it had also resulted in a demand for orthopaedic education as a part of the student's curriculum. Although he was resigning the post of surgeon to the Royal Southern Hospital, he was retaining, in addition to the aftermath of military work, his connexion with various children's hospitals. He alluded to the pioneer work Liverpool, through the munificence of its citizens, had accomplished in the care and cure of cripples, and felt proud that Liverpool had maintained the lead in all that pertained to child well-being.

Dr. J. E. Gemmell, President of the Liverpool Medical Institution, proposed the toast of "The Royal Southern Hospital," responded to by Mr. Thomas Woodsend, president of the Hospital Committee. Dr. C. J. Macalister proposed the toast of "The Guests," responded to by Dr. J. G. Adami, Vice-Chancellor of the University of Liverpool, and by Sir Berkeley Moynihan. Mr. T. R. W. Armour, who acted as organizing secretary of the banquet, and to whose

indefatigable labour its memorable success is mainly due, proposed the health of the chairman, to which Lord Derby replied.

MANCHESTER ROYAL INFIRMARY FINANCE.

The annual report of the Manchester Royal Infirmary now issued, in addition to containing an account of the activities of this great provincial institution, raises some points of general interest in regard to hospital finance. The board, it is stated, have carefully considered the question of the admission of "paying patients," but hesitate to adopt a principle which is contrary to the spirit of the constitution of the Manchester Royal Infirmary. Careful inquiries are made, however, as to the financial status of each patient, and where it is found that patients are able to contribute towards the cost of maintenance while in hospital they are asked to do so. By this means a considerable sum is raised annually, and it is worthy of note that "the patients are almost always anxious and pleased to contribute." About 50 per cent. are quite unable to contribute anything. On examination of the statistics given, it is found that in 1920 £18,912 was received as payments from patients—including £1,870 from local authorities and £8,353 from the Ministry of Pensions after deduction of the proportion paid to the honorary medical staff—the corresponding sum received in 1913 being £4,222. It is pointed out that the sum received from the Ministry of Pensions will diminish and probably disappear in the near future; but one may hope that the income from local authorities as well as from the patients will correspondingly increase. Annual subscriptions, on the other hand, have increased only to £19,993 in 1920 from £11,002 in 1913. Such funds as the Hospital Saturday Fund and Sunday Fund, and congregational and workmen's collections, are surprisingly small, and have not increased to any material extent from 1913. Turning to the statistics of expenditure, the chief increases have been in the cost of provision (£9,630 in 1913, £29,479 in 1920), in fuel, light, and water (£3,498 in 1913, £10,966 in 1920), and in salaries and wages (£11,380 in 1913, £33,235 in 1920). These increases are, of course, general throughout the country.

As in other hospitals, therefore, the income from annual subscriptions does not in any way keep pace with the necessarily increased expenditure, but it must be obvious from these figures that, without sacrifice of the voluntary principle, a considerable income may be obtained by hospital authorities from payments by patients receiving treatment, particularly in a district where, as in Manchester—so far as one can gather from this report—workpeople's funds do not appear to be so thoroughly organized or to contribute so largely to hospital finances as they do, for instance, in Leicester.

Scotland.

EDINBURGH ROYAL INFIRMARY.

IT is of interest to note the following comparative figures, which relate to the work and finances of the Edinburgh Royal Infirmary in 1920, as against forty years ago, 1881:

	1881.	1920.
In-patients treated	5,288 (including fever)	13,320
Out-patients	15,000	48,000
Daily average of in-patients	520	875
Average length of stay	31.6 days	24.05 days.
Average of deaths	8 per cent.	6.8 per cent.
Patients at Convalescent House ...	704	1,158
Daily average of patients at Convalescent House	43	61
Ordinary income	£21,902	£127,126
Extraordinary income	£6,572	£66,415
Voluntary contributions	£13,742	£88,482
Revenue from investments	£4,418	£16,838
Ordinary expenditure	£31,720	£130,667
Cost per bed	£61	£149 6s. 6d.
Stock and funds...	£89,634	£479,031
Nurses and probationers on staff ...	101	312

OVERCROWDING OF MEDICAL STUDENTS IN GLASGOW.

In order to cope with the conditions attendant on the present overcrowding in the Faculty of Medicine at Glasgow, the Students' Representative Council at Glasgow University have urged upon the Senate the need for certain improvements. The following resolutions have been approved by the Senate:

> That in the departments of anatomy and physiology the staff of demonstrators be increased and more demonstrations given; that the number of hours' laboratory practice in anatomy be published in the calendar and no longer left to the decision of the professor; that the classes of fevers, diseases of sick children, and midwifery be confined to senior students; that the number of students attending the classes of fevers be increased; that three examinations be held annually in second and fifth professionals only. Final examinations to be held twice yearly, while the application by service students for a final in June will be considered.

Other proposals are still under consideration.

CARE OF LIMBLESS MEN.

The annual report of the Princess Louise Cottage Hospital for Limbless Sailors and Soldiers, Erskine, points out that while the number of pensioners admitted to hospital for treatment was diminishing in number, the pensioners who returned to Erskine for training had greatly increased. Since the hospital was opened, until the end of last year, some 6,146 in-patients had been admitted, about 9,496 patients had been fitted with new limbs and repairs to limbs, and 318 pairs of surgical boots had been supplied. The number of major operations was 69, making a total of 470 since the hospital was opened. Reference is made in the report to the services rendered in limb-making and fitting in the workshops and in the training of men for various trades. At the fourth annual meeting of subscribers, held on February 4th, in the City Chambers, Glasgow, Sir William Macewen recalled that when the hospital was launched he had pointed out that it was not the first issue of limbs alone that had to be provided for. Artificial limbs needed to be readjusted, repaired, and renewed throughout the lifetime of the men, and a generation would pass away before all the work connected with the limbless men in the great war was at an end. A great number of the men thought that, now that a little fuss had been made over them, they were to be forgotten. After speaking of the need for subscriptions, Sir William Macewen referred to the inquiry by the commission to which he had given evidence as to the future possibilities of the hospital. While he was not at liberty to speak meantime on that subject, they could rest assured that things were being fairly satisfactorily arranged. The workshops and everything else in Erskine were ready now to be made use of. They could take in quite a number of the severely disabled men, and he hoped arrangements would be made by the Government whereby such men could take advantage of the hospital, and the Government could subsidize or pay maintenance allowance for a certain number of them. Mr. David M'Cowan, in moving approval of the annual statement of receipts and expenditure, said that the funds they had raised showed that the people of Scotland, and particularly the West of Scotland, could rise to the occasion, especially when it was for the benefit of wounded soldiers. The motion was adopted. On the motion of Lord Blythswood a vote of thanks was accorded to the surgical and medical staff.

Ireland.

WE regret to announce the sudden death of Dr. J. C. McWalter, late High Sheriff for the City of Dublin, who was well known in public and professional life in Dublin. We hope to publish an obituary notice in an early issue.

REPRESENTATION OF QUEEN'S UNIVERSITY IN THE ULSTER PARLIAMENT.

A joint meeting of the County Derry Branch of the Irish Medical Association and County Branch of the Irish Medical Committee was held in the Town Hall, Coleraine, on January 28th. Dr. Creery occupied the chair, and there was a large attendance of members. Dr. Charles Forsythe, J.P., moved two resolutions, one expressing the opinion that of the four seats allotted to the Queen's University in the Ulster Parliament at least two should

be held by graduates outside the Belfast area; and the other

"That, in recognition of Dr. H. S. Morrison's long service on behalf of medical and social reform, we nominate him as our candidate, and we commend his claims to all the branches of our associations and to the graduates of the university generally."

Dr. Lennox, J.P., Kilrea, Secretary, Dr. Magowan, Maghera, and Dr. Thompson, J.P., Bellaghy, supported the resolutions, which were unanimously adopted.

KING'S PROFESSOR OF MATERIA MEDICA.

Dr. T. Gillman Moorhead, Visiting Physician to the Royal City of Dublin Hospital, has been elected by the Royal College of Physicians of Ireland to the King's Professorship in Materia Medica in the School of Physic in Ireland. The vacancy was created by the resignation at the close of last year of Dr. Walter George Smith, who had held the chair for many years. There are four King's Professorships at the School of Physic—in practical medicine, in materia medica and pharmacology, in the institutes of medicine, and in midwifery. The Medical School of Trinity College, Dublin, founded in 1711, was incorporated in 1800 in the School of Physic in Ireland, established that year by Act of Parliament, and was placed under the joint control of Trinity College and the Royal College of Physicians of Ireland.

Correspondence.

SIR JAMES MACKENZIE'S THEORY OF DISTURBED REFLEXES.

SIR,—Granting the possibility of changes in reflex arcs of such a kind that an abnormal response is brought about, there seems no doubt that the phenomena must play a very important part in the symptoms observed in various diseased conditions. A few remarks from the point of view of a physiologist may perhaps be of some interest in the discussion.

Sir James Mackenzie refers to the action of strychnine, tetanus toxin, and similar agents which cause inco-ordinated reflex convulsions. I believe the nature of this effect was first analysed by Sherrington and shown to consist in the reversal of what is normally an inhibitory action by the afferent stimulus on the motor centres of the antagonists of those muscles concerned in the reflex movement, so that the result is simultaneous contraction of opposing muscles. This conversion of inhibition to excitation is particularly disturbing when inhibition is the chief part of the innervation process, as in opening the mouth by relaxation of the temporal and masseter muscles. As Sherrington points out, the greater the effort to open the mouth, the more powerfully is it closed, on account of the great power of the muscles which close the jaw compared with that of those that open it. This above-mentioned reversal was worked out by myself in its application to vasomotor reflexes, and it appears to be a very general phenomenon in nervous processes. I was also able to show that the pharmacological antagonists of strychnine, such as chloroform, chloral, etc., have the opposite effect in vasomotor reflexes, in that they convert the excitatory process into an inhibitory one, and it was shown soon afterwards by Sherrington and Sowton that the statement applies also to reflexes to voluntary muscles. The sequence of events in such a case as the effect of strychnine on the depressor reflex in the rabbit, may be of some significance. As the dose is gradually increased, we see at first an exaggeration of the normal vaso-dilator effect; this is step by step converted into a vaso-constriction and ultimately paralysed altogether. It appears as if reversal were a stage in the paralysing action.

It is not to be understood that reversals of this nature are only of toxic or pathological origin. They make their appearance in normal neural processes, as shown by the following experiment due to Magnus. The direction of the movement of the tail of a spinal cat, when the tip is pinched, varies with the position in which it hangs. This movement is always towards the stretched side, so that the same afferent impulse produces in one position excitation of those muscles which are inhibited in the opposite position. The condition of the centre must be changed by receipt of afferent impulses from the stretched muscle. Sherrington and Graham Brown, moreover, showed that the sign of the effect from a particular cortical point varied according to whether other points were stimulated at the same time, and whether the point itself had recently been in activity. Thus, as is so frequently the case, the morbid process is essentially a running wild, as it were, of a natural one.

But in any case we realize what a wide field of research is opened up in the interpretation of symptoms on lines akin to this. It will be generally admitted that very little, if any, advance is made by the mere multiplication of symptoms recognized unless we know more about them. They may be merely indirect results of previously known ones. The analysis must be pushed further back in the way indicated by Sir James Mackenzie, while the correct recognition of the less obvious signs will greatly assist in this. We see also how the possibility of disturbed reflexes warns against hastily assuming a local manifestation to be due necessarily to a morbid process in this particular place.

Sir James Mackenzie points out that there may be a disturbance in the receptor or effector part of the reflex arc as an additional possibility to that already referred to concerning the nerve centre or adjustor. I may recall certain facts which suggest that an agent which normally produces a contraction of smooth muscle, by stimulation of the peripheral myoneural junction, may be reversed in its action by the presence of a toxic substance, so that it now causes relaxation or vice versa. This suggestion was made some years ago by Dr. H. K. Anderson, in explanation of the experimental fact, found by Elliott, that the contractile action of adrenalin may be converted by ergotoxine into an inhibitory one. I subsequently put forward the same view myself, in ignorance of Dr. Anderson's having previously done so. A similar effect is that described by Langley in the case of the bladder, in which stimulation of the sacral nerves causes inhibition after nicotine or curare, in place of the normal contraction; and that by Dale and Laidlaw, in which it appears that cytisine may convert the normal secretory effect of the chorda tympani nerve into an inhibition of secretory activity already in progress.

Our attention is also directed to the part played by the process called "facilitation" by Sherrington. In this a stimulus, itself below the threshold of activity, is made active by the simultaneous play of stimuli from other sources upon certain neurones in the course of its passage through the nerve centres. This is pointed out as being of especial importance in correctly estimating the value of symptoms of pain.

I thoroughly agree with the emphasis laid by Sir James Mackenzie on disturbances of blood supply. It is clear that a vital organ may suffer from want of oxygen, not only owing to failure of the heart or loss of circulating blood, but also from a local spasm of arterioles, which may well be due to a disturbed reflex.

Although I can lay no claim to express any opinion on clinical matters, it seems to me that the disturbance of reflexes described must undoubtedly take place, and, if so, a powerful means of analysing and interpreting the complex symptoms of disease has been provided.—I am, etc.,

London, N.W., Feb. 3rd. W. M. BAYLISS.

SIR,—The question of definition of the word "symptom," asked by my friend Dr. Harry Campbell, is one which has been the subject of much deliberation. In a sense the definition depends upon the use one intends to make of the definition. If it is only for purposes of abstract reasoning, one may easily become lost in a maze of logomachy, but if it is to be employed in the examination of patients there are several definitions of value. For this latter purpose we define *symptoms* as the reaction of the tissues to an injurious agent. We use the term freely, and do not differentiate it from sign—using the terms symptom, sign, and manifestation of disease interchangeably. By and by we may get a clearer definition, but the above definition represents the state of knowledge which we have reached.

Dr. Halliday Sutherland's objection to consumption being a secondary disease is possibly quite valid. In my twenty-eight years in general practice many of my patients developed consumption, but my recollection is that all, or most of them, were ill for years and frequently under my

care for a variety of complaints. It occurred to me that their complaints may have been due to conditions which predisposed to consumption. I quite realize that these preceding complaints may have been due to the action of the tubercle bacillus before declaring itself in the lungs. It shows the need of recognizing the symptoms produced by the invasion of the tubercle bacillus.

The well known fact that certain infectious diseases and certain drugs—which act as imitation diseases—give rise to a peculiar grouping of symptoms suggests that many obscure illnesses are due to a definite toxic agent. These agents may be recognized, not by the peculiarity of one symptom but by the peculiar grouping of symptoms. We find that many symptoms are common to a great many widely different disease agents, but that each agent produces a peculiar grouping of these symptoms. Though we recognized this, we made little progress until we found that there was some mechanism which was capable of producing a great number of symptoms, and thus we were led to the recognition of disturbed reflexes being this common mechanism.—I am, etc.,

J. MACKENZIE.

The Clinical Institute for Research,
St. Andrews, Feb. 7th.

A PROFESSOR OF MILITARY MEDICAL HISTORY AT THE R.A.M. COLLEGE, LONDON.

SIR,—We need at the Royal Army Medical College a Professor of Military Medical History, working exactly on the same lines as a Professor of Military History at an ordinary military college.

This suggested professor would trace out in his lectures the evolution of medical aid in war—and deal from the health point of view with the evolution of sanitary science—in our own and other armies. The tragedy of the Crimean war has gradually been forgotten; all that Walcheren stood for is wellnigh unknown, and we need to go back decade on decade into the history of the wars of the French Revolution and the Napoleonic era. I grew up in the army in the midst of the Crimean military surgeons, heard all the miserable story of the Crimean winter, and received from such descriptions an intense stimulus to army medical war developments. I sat for long hours, and times without number, listening to the story of Florence Nightingale's experiences from her own lips, and so needed no professor to stimulate my efforts at war betterment.

The moment the R.A.M.C. officers know that such a professorship as I propose will be founded their study of military medical history will be developed and further readiness for war responsibility will result. The cost of the professorship will be about £1,000 a year, and it will repay the nation hand over hand by its results. I do not now refer to sanitary science or military hygiene only: I include personnel, hospital administration, field medical discipline, the disposal of wounded in the past. One day, when we are better friends of the army officers, they will send us their professor of military history to give fourteen lectures each year, and we will repay the compliment by lending our professor of military medical history.

Till this combination comes complete success is impossible.—I am, etc.,

GEORGE J. H. EVATT, M.D.,
Major-General Army Medical Staff (retired).

Junior U.S. Club, Charles Street, St. James's,
London, Feb., 1921.

SUGGESTIONS FOR A CO-OPERATIVE HEALTH SERVICE FOR LONDON.

SIR,—It is curious how often people may be thinking and working on the same lines quite unknown to each other. Whilst Brighton has been evolving its provident scheme, I have been working out a possible health service for London on very similar lines. The Brighton scheme, however, is apparently intended primarily for insured persons, whereas mine is intended in the first instance for that large section of the community whose incomes exclude them from the benefit of the National Insurance Act, but who are nevertheless unable to provide for themselves the present costly methods of diagnosis and treatment. To secure for them a complete health service, including general practitioners, consultants, and specialists, a well-equipped health centre and a private hospital is the main object of the scheme, but seeing that there is at present no organized service of consultants and specialists under the National Insurance Act, such services would be thrown open to insured persons at specially arranged subscriptions. That the middle classes, who have been especially punished by the war and the high cost of living, require some method of obtaining the advice and treatment they require is hardly open to doubt, and from a study of statistics of the population and of the income tax returns I feel sure that it could be provided with great advantage to themselves and to the medical profession on the principles of insurance, whereby each breadwinner or income owner would pay a yearly subscription for himself and his family to cover the risk of requiring medical advice and treatment. The subscription would vary with the income earned or possessed and with the size of the family. Those earning under £300 a year would pay £1 15s. a year for himself and a similar sum for each member of the family, and the subscription would rise to £5 or £6 for larger incomes, and even more according to the limit decided upon, as shown in the accompanying table.

Subscriptions per Head of Insured Persons.

Unit of 1,000 Breadwinners and 1,000 Insured Persons, representing 4,240 Souls.

Incomes.	Breadwinners.	Breadwinners and Dependants.	Annual Subscription per Head.
Under £250	1,000 nationally insured.		£ s. d. 1 1 0
£ £ 250 — 300	325	1,052	1 15 0
300 — 400	225	729	2 0 0
400 — 500	96	310.4	2 7 6
500 — 600	74	237.2	2 15 0
600 — 700	55	179.8	3 2 6
700 — 800	45	144.2	3 10 0
800 — 900	35	115	3 17 6
900 — 1,000	28	92	4 5 0
1,000 — 1,100	20	64.8	4 12 6
1,100 — 1,200	17	55.4	5 0 0
1,200 — 1,300	15	48.6	5 7 6
1,300 — 1,400	15	48.6	5 15 0
1,400 — 1,500	15	48.6	6 2 6
1,500 — 1,750	20	64.8	10 0 0
1,750 — 2,000	15	48.6	12 0 0
Breadwinners ...	1,000	4,240	
Nationally insured .	1,000		

In explanation of this table it must be pointed out that, according to the last census, in every 1,000 breadwinners over the age of twenty 300 are unmarried and 700 are married, and that each married couple is on the average responsible for 2.2 children; also that the number of persons earning the specified incomes are taken from income tax returns. The figures, as will be seen, are based upon a unit of 1,000 breadwinners with their families and 1,000 nationally insured persons. With 3,000 or 4,000 subscribing breadwinners the annual subscriptions could be reduced by 20 or 25 per cent.

The yearly subscription would entitle the subscriber to the services of a general practitioner, to medical aid in confinements, to the advice and help of consultants and specialists, to operative treatment, to the use of the equipment at the health centre, and to admission to hospital.

With the suggested scale of subscriptions general practitioners could be paid double the present capitation grant for nationally insured persons, and 5 guineas for each confinement. Consultants and specialists could be paid at any rate the usual pre-war consultation fees, and an average of about 35 guineas for operations. If subscribing members were admitted to voluntary hospitals, a donation of about £4 a week could be made to their funds, and the contemplated private hospital would do something to relieve the congestion of their waiting lists. Finally, when all these payments had been met, there would be a substantial balance for the running costs of

the health centre, which might eventually become a "Mayo clinic" for London.

At the present time a greatly extended scheme of compulsory insurance seems to be in the air, and this would not, I believe, be welcomed by those who have had experience of the working of the National Insurance Act. A voluntary scheme such as is here outlined would have the great advantage of keeping its control and management in the hands of medical men and their patients, and it might in time solve the whole question of an organized medical service "available to all citizens," such as the Dawson Report deems to be so necessary for the health of the individual and of the community. If successfully launched in London it could easily be extended to the provinces, and eventually to the whole country.—I am, etc.,

London, W., Jan. 27th. CHARLES A. PARKER.

THE RISKS AFTER OPERATIONS FOR TONSILS AND ADENOIDS IN OUT-PATIENT CLINICS.

SIR,—I should like to thank your numerous correspondents who have shown their interest in the question raised in my original contribution in your issue of December 11th, and who have added so much valuable information. My purpose was simply to submit evidence that the risks of serious complications, even with carefully selected cases, are far greater when the patients are sent home soon after the operation than when they are kept in hospital for a day or two.

In some hospitals there is sufficient in-patient accommodation, and the operation can be performed under conditions which minimize the risk of complications, and which add greatly to the comfort of the children. In others, pressure upon beds renders this impracticable. Some of your correspondents have offered useful suggestions whereby the difficulty may be overcome.

It may serve a good purpose if I venture to draw attention to the recommendations in the Report for 1919 of the Chief Medical Officer to the Board of Education, Sir George Newman. Followed to their logical conclusion these leave little to be desired, and are in advance of the practice in some hospitals with special clinics. He emphasizes seven "points as regards arrangements for the operation which experience proves to be important." These include proper preliminary preparation of the child, a competent anaesthetist, and a skilled operator, and further—

"beds should always be available; primary subsequent care of the child in order to protect it from chill, dust, fatigue, and septic and other infections; secondary subsequent treatment . . . medical and nursing supervision during the days immediately following the operation . . . ; and partly after-care treatment, including appropriate and prolonged remedial and breathing exercises. All these matters, it should be noted, are important, not only to avoid accidents (for in any case these are extremely rare), but to secure the full and proper advantage of the operation."

—I am, etc.,

E. WATSON-WILLIAMS,
Surgeon for Diseases of Ear, Nose, and Throat, Southmead Hospital and Royal Hospital for Sick Children and Women, Bristol.

February 7th.

THE BRADFORD MUNICIPAL GENERAL HOSPITAL.

SIR,—In the JOURNAL of January 15th the above hospital was crushingly dismissed by Mr. Hall as "the same old obsolete group of buildings which the Local Government Board *condemned* as unfit for hospital purposes twenty years ago." It now appears (vide JOURNAL of February 5th) that what he really meant to say was that the Municipal Hospital "is a group of buildings unsuitable for the requirements of a general hospital," a portion of which (280 beds) was erected sixteen years ago, and *sanctioned* by the Local Government Board for hospital purposes. The present unsuitability of these buildings he ascribes to their having been "built for Poor Law purposes under the Poor Law regulations," and consequently to their sharing with many general hospitals the disadvantage of providing less than 1,500 cubic feet per bed. There is no criticism of their construction, lighting, heating, equipment, cleanliness, or nursing facilities; their condemnation rests solely on the inadequacy of the space per bed, which, in the buildings under discussion, is 1,115 cubic feet.

This deficiency could, of course, easily be remedied by a reduction of 20 per cent. in the number of certified beds. By doing this all round, the Bradford Municipal Hospital could provide more than 1,500 cubic feet for each of 900 beds.—I am, etc.,

Bradford, Feb. 6th. B. HOLROYD SLATER.

THE PREVENTION OF VENEREAL DISEASE.

SIR,—I am much obliged to Mr. E. B. Turner for the good opinion he expresses of me in his review of my book (BRITISH MEDICAL JOURNAL, January 29th). I hope my intimates, who are sometimes disrespectful, will read and inwardly digest. But Mr. Turner suggests that I exaggerate, and that I am unfair to the Royal Commission on Venereal Diseases and to the National Council for Combating Venereal Diseases.

As to exaggeration. After insisting in the beginning of the book that I am not in a position to estimate the prevalence of venereal disease from facts within my own knowledge, I give the official figures, and invite the reader to form his own opinion; but, of course, I state what the figures appear to mean to me—that is, if 10 per cent. of the population of the large towns suffered from syphilis before the war, if gonorrhoea is many times more prevalent than syphilis, if both diseases have since increased, if 79 per cent. of the population is urban, and if three out of four men get their infections from amateurs, the estimate that about half the population has been infected does not appear excessive to me.

As to the Royal Commission. This body was appointed "to inquire into the prevalence of venereal diseases in the United Kingdom, their effects upon the health of the community, and the means by which those effects can be alleviated or prevented." *Prevented*, be it noted. Metchnikoff published his discovery in 1906. The medical world rang with it. When the Royal Commission published its report in 1916 that discovery was under employment for the protection of the British Navy and some 20,000,000 soldiers on the Continent. Yet the Commission ignored Metchnikoff and prevention, and left the Government and the public to infer that there was no such thing. We have, then, two alternatives. It would be interesting to know which of them Mr. Turner prefers. Either the Commission was so ignorant that it had never heard of Metchnikoff and prevention, in which case it was intellectually unfitted for its task; or else it deliberately suppressed the truth, in which case it was morally unfitted for its task. As a fact, some of the medical members were anxious to consider prevention, but were told that any attempt to deal with it would wreck the whole inquiry.

The Commission warmly commended to the Government for its future guidance the newly formed National Council for Combating Venereal Diseases. In other words, it warmly commended itself; for the chairman of the one became the president of the other, and was followed by many members of the Commission to the directorate of the Council. At first it was proposed to call the latter "The National Council for the Prevention of Venereal Disease," but "Prevention" suggested the accursed thing and was changed to "Combating." To this day the lecturers of the Council are forbidden to mention prevention. The Council, a self-appointed body of private people, warmly supported by such dignitaries as the Archbishop of Canterbury, became extremely influential with a Government that was anxious to evade unpleasant responsibilities, and has been entrusted with the expenditure of increasingly large sums of public money. So financed, some of its members are now touring the world spreading the light as revealed to them. At least they will see the world. The policy of the Council has three principal features: (1) Morality is preached to adults and adolescents who, having already received their bias, have become unteachable, as any reader of the BRITISH MEDICAL JOURNAL may judge by examining his own consciousness and considering what effect moral lectures would produce on, for example, errand boys, factory hands, university undergraduates, and medical students. (2) The horrors of disease are expounded to prospective sinners who are thereby frightened from prostitutes to the pursuit of amateurs. (3) Clinics are thoughtfully provided to meet the resultant increase of disease.

Mr. Turner says that one of the most distinguished members of the Council was active in establishing the army venereal ablution rooms. But that is precisely what

I indicate in my book; I say that "a sort of bargain was made." In 1916 venereal disease was draining the army, and there was a dearth of trained men. The authorities wished to issue packets, which, though unnecessary in view of the abundant disinfectants available, would have constituted an attempt to bring quick disinfection within reach of every man. But "influential people" intervened, and the ablution rooms for "early treatment" were established instead—that is, for delayed and inefficient disinfection available only for men in camps and barracks. Later, dissatisfied with the results, I told the men in my charge:

"I have talked to you till I am tired, and you will go wrong. But I will not have you bringing these beastly infections into barracks where they are a danger to your comrades. In future, if you think you are likely to go wrong you must carry disinfectants and use them at once. If you bring a small bottle and ask my orderly, he will supply them."

After that for six months I had not a single case of venereal disease, and during twenty-eight months my rate of infection was 1.5 per 1,000 per annum. In the garrison generally it was 92. One officer wrote that owing to the nature of their duties he could not send his men for instruction; would I give him the heads of a lecture? I wrote a discourse in full, and a copy of it got into the hands of the authorities and was by them printed as a "specimen lecture" for medical officers. But it was altered. All my moral platitudes were left unchanged; but the gist of it—the insistence on immediate disinfection—was replaced by an injunction to get the disinfectants after return to barracks and *then* seek some retired place, "a w.c. or dark doorway," and there disinfect. Conceive it: the men were not even to disinfect as before in the ablution rooms. Imagine a sergeant-major—all sergeant-majors are great sticklers for the conventions—catching a man swabbing himself in a barrack doorway! The thing would have been positively dangerous. These sapient alterations were made, characteristically enough, by just that active and influential member of the National Council who, as Mr. Turner says, was so zealous in establishing the venereal ablution rooms. Still later, when the authorities resolved—in spite of the protests of those with whom I was associated—to introduce packet instead of instruction, the potent "influential person" again intervened, and the packets were used for "early treatment." Then followed the statistical acrobatics of the Ministry of Health which I described in my letter to the BRITISH MEDICAL JOURNAL of January 22nd.

Mr. Turner says that my advocacy of quick disinfection is built on "some extraordinarily good results" obtained by Surgeon Commander Boyden and me. He is good enough to attribute my success to "the fact that he is an extremely able, enthusiastic, and energetic man." But equally good results (described in my book, but not mentioned by Mr. Turner) were obtained in India and all over Hampshire and Dorsetshire. Were the scores of medical officers concerned all "extremely able, enthusiastic, and energetic"? I think myself that their distinguishing peculiarities were a genuine desire to prevent disease and the possession of a modicum of common sense.

But Mr. Turner appears to have done even better by means of moral teaching. "The result of a lecture was that . . . while that unit remained at the dépôt the number of cases of venereal disease diminished from 50, 40, 30, as the case may be, to 3, 2, 1, or none." Think of the splendour of that achievement! Can any reader of the BRITISH MEDICAL JOURNAL imagine his ideas of right and wrong and conduct being so profoundly altered by an hour or two of eloquent talk? Yet the like was done, and even among soldiers. But think also of the slackness and turpitude of the Government—with me, as the readers of the JOURNAL know, a favourite theme. Here was Mr. Turner giving occasional lectures for the National Council, and he would have been cheap to the nation at a million a year. I hope Mr. Turner will join in pressing for that inquiry into the past which the Society for the Prevention of Venereal Disease advocates.

Several correspondents have asked why the National Council and the Society, which are both anxious to reduce the prevalence of venereal disease, do not sink their differences and consult as to a common policy. Because they are separated by much more than a mere difference of opinion. It is necessary to speak bluntly. It is alleged that the truth has been suppressed, the untruth suggested, and that there has been an actual falsification of records. The Society for the Prevention of Venereal Disease earnestly desire an authoritative inquiry into the past, feeling that otherwise—no matter what promises are made or what agreements contracted—it cannot trust the future. I speak only for myself, but I feel sure that if both societies unite in promoting such an inquiry all grounds of disagreement will soon vanish.—I am, etc.,

Southsea, Feb. 7th. G. ARCHDALL REID.

SIR,—I am probably right in assuming that the members of the Society for the Prevention of Venereal Disease do not carry prophylactics for their own use, do not instruct their sons to do so, and do not see that their own children are instructed from an early age in the nature and danger of venereal disease and the methods of prevention. If I am right, what is the reason?

Doctors possess the racial instinct as other men, and are exposed to the same temptations, but they are trusted by their wives and patients, they are expected to be moral, and the very idea of the abuse of that trust is abhorrent to them. They have a moral control which is far stronger than the chemical aids to immorality which are advocated by the Society.

If this moral control is sufficient for doctors, it should also be sufficient for clergymen, lawyers and all men in a position of trust, for all those who are trusted by their wives, and for those who hope to marry pure women and have healthy innocent children. It may not be sufficient for those living in overcrowded unhealthy slums, but the remedy here is obviously one of bricks and mortar, and not one of chemicals.

I have five sons and two daughters and am alarmed by the propaganda carried on by this society. Any man or woman who allows a youth or young girl to believe that there is any necessity for them to give way to temptation does incalculable harm. I am grateful to the Medical Women's Federation for their opposition, and my alarm is lessened when I see that this opposition makes Sir Bryan Donkin forget his chivalry—an indication that his case is a losing one. I believe that when we are able to think in terms of peace we shall realize that measures that may have been advisable in the segregation of camps or in the neighbourhood of the battlefield are harmful and vicious amongst a civil population.

There is no reason why a healthy sane man should be unable to control his natural instincts, and if every woman would insist that men can and must keep straight, this society, which is lowering the moral standard of the country, would soon cease to exist. I believe that the men and women of this country are much more moral than the members of this society would have us believe. I am convinced that the only sound method by which we can really prevent venereal disease is by raising the moral standard, and by educating people, especially women, to realize that there is no necessity for men to give way and risk infection.—I am, etc.,

Reading, Jan. 31st. S. GILFORD.

SIR,—The nation will eventually be grateful to those who are endeavouring to enlighten it. But while few would accede to the doctrine that preaching the use of disinfectants constitutes the sin of apostasy, others naturally hesitate to advise what they think might lead to immorality.

Little has been said of the loss of moral tone that is a sequel of venereal disease. The nervous system suffers. Periods of excitement lead to further excesses, and this involves spread of the disease. Depression is relieved by drinking. The general effect may well be set off against the possibilities involved in a widespread knowledge of disinfectants. Perhaps this argument—and it becomes more powerful the more carefully it is examined—may induce some to modify their views in opposition to the new proposals.

I think it is true that when man is in the mood he cares little either for morals or microbes. But it is equally true that, if not in the mood, if a petticoat does not move him, permanganate will not do so. Aristotle quotes Homer as to "Charms that do steal the reason of the wise." Elsewhere, writing of sexual pleasure, he says, "No one engaged therein can think at all." In his saner mood man will reason correctly, but when moved by desire good

resolutions vanish. That this mood is periodic is recognized, and if a man can tide over the mood the period passes. This is the crux—how to get clear. The only common remedy I know is hard exercise and a purge. But many regard such advice as comic and stupid.

Early environment counts for much. Those growing up in crowded tenements are habituated to sexual knowledge. They are apt to regard the sexual pleasure as lawful, one akin to eating and drinking. Erotic literature and pictures are another factor. A campaign against these stimulating evils is needed.

There is one strong argument that affects most men. No ordinary sane man desires his wife's death by a repulsive disease, or her change into a feeble and useless creature. None desire hideous or deformed children. Even the wildest young bachelor has lying in his inner consciousness the hope of having healthy children eventually. Working upon this feeling—in itself part of the great law of reproduction—great success may be anticipated. I am inclined to suggest that we leave women out of the discussion for a time and tackle the men only. The reproductive process has two stages: (1) Initiation by the male, (2) conservation by the female. When the men fully grasp the position the women will follow suit.

If these considerations be approximately correct—and there is much others have written which must be included—we may find a common basis, which perhaps all will accept, and which might be formulated as follows:

1. Spread widely a knowledge of the effects of venereal disease, especially in producing idiotic and diseased children.
2. Instruct all boys. Insist upon the advantages of continence in rendering a boy fit to hold his own in games and studies.
3. Teach the practical value of hard exercise and a purge, perhaps bromides, in tiding over periods of stress (the nerve storm is the real crux, as I have said).
4. Add: "But if you will make a beast of yourself, at least remember possible children, and use disinfectants."
5. Encourage men of all classes to join the Alliance of Honour, for definite short periods, with renewals.

I have for many years talked to officers and their men upon these subjects, and in my last Division I distributed a pamphlet (a copy of which I enclose). Later I saw many well-thumbed copies, and old soldiers expressed their appreciation. I speak of these results as evidence of receptivity. Although it is the reproductive principle that urges men to excess, another factor of the same principle is our strong ally—the love of children—and I feel sure we can make great use of this in our campaign.—I am, etc.,

T. M. CORKER,
Major-General A.M.S. retired.

Bournemouth, Jan. 31st.

SIR,—Mr. Kenneth Walker's letter in your issue of February 5th, expressing in the main opinions with which my Society are cordially in agreement, yet shows that he shares with many others a misapprehension of the origin and scope of the Society for the Prevention of Venereal Disease.

This Society was founded solely to fill in the gap in the propaganda of the National Council for Combating Venereal Diseases left by their opposition to instruction of the public in the prevention of infection by means of immediate self-disinfection. My Society, while freely acknowledging that immediate self-disinfection is only one of many methods for diminishing venereal disease, believe that this method is an extremely important and valuable one, and our propaganda is devoted solely to bringing this method before the public, not because we are in any way whatever antagonistic to other methods, but because this method was not only neglected but actively opposed by the National Council for Combating Venereal Diseases. Our work is not in opposition to but complementary to that of the National Council.

In order to obviate overlapping, we confine our work to giving publicity to the one method not included in the useful and widespread propaganda of the National Council for Combating Venereal Diseases. The suggestion that we "regard it [immediate self-disinfection] as the single measure that will cure our ills" is therefore founded on ignorance of our published statements.

Again, we have times without number pointed out that we do not advocate the packet system, and in our letter published in the *Times* of October 13th, 1919, which defined our policy, we stated:

"We decline to accept the description of our policy as 'the issue of prophylactic packets to the civilian community' in the way in which they were issued to H.M. Forces. No suggestion has yet been made by our committee as to the methods or means by which the public may obtain the necessary disinfecting material, the fact that such materials are easily obtained at any chemist being in our opinion quite sufficient. The aim of the committee is solely the instruction of the public."

Mr. Walker has summed up our wishes in his sentence, "let each of the societies work along the line it has chosen." My society would welcome the teachers of moral prevention as allies working along another line towards the same goal, if they on their part would accept the alliance of the teachers of medical prevention, and not waste valuable energy in opposition that is not only unnecessary but also hopeless as long as disinfectants are acknowledged to disinfect.—I am, etc.,

H. WANSEY BAYLY.

London, W.1, Feb. 4th.

STAG'S ANTLERS AND EVOLUTION.

SIR,—In the notice of Sir William Macewen's book on *The Growth and Shedding of the Antlers of the Deer*, in your issue of February 5th, your reviewer says:

"When regarded from the evolutionary point of view the stag's antlers are a great puzzle. It is not easy to see that they serve any purpose which, even if they grew once for all, would be commensurate to the expenditure of energy and material; as the antlers are shed annually, the puzzle becomes greater."

I venture, however, to think that from the evolutionary point of view the explanation is simple. It is obviously desirable that the fittest stag should perpetuate its kind, rather than the less fit, and if, after all the expenditure of energy and material associated with the annual development of the antlers a stag outrivals its fellows in the struggle for the possession of the female, surely this is a very tangible proof that it is the fittest. If it were merely a question of the survival of the somatic individual, the expenditure on antler growing would no doubt be puzzling, but evolution puts very little importance on the individual *per se*.

The points referred to, namely, great expenditure of energy, the selection of the male which expends most, and the unimportance of the individual provided it achieves success in reproducing its kind, are simply illustrated in the case of the bee. The queen bee in her nuptial flight flies to an extraordinary height, and then only lets success fall on the drone in the swarm following her which is most powerful and energetic and proves it by leaving all the others behind. Having performed his function in life he falls dead.—I am, etc.,

J. SIM WALLACE.

London, Feb. 5th.

X-RAY RADIATION AND CANCER OF THE BREAST.

SIR,—The question of treatment by *x* radiation has long since passed from the sphere of academic discussion into that of practice. Every practitioner now knows that there are many patients whom he cannot honestly advise on the best course of treatment without a more or less intimate knowledge of *x* radiation and its influence on the normal and abnormal cells of the body.

In the case of various non-malignant diseases of the skin, etc., such knowledge is a refinement which possibly he may neglect and leave to the whole-time specialists in this subject.

In the case of malignant disease, however, this seems to me wrong, for we are here dealing with the immediate issue of life and death to the patient.

It is unfortunate that the problem in the latter case is more difficult than in the former, but just here the question of dosage is one of extreme importance, because on it depends the good or the potential harm which he may do.

However, nothing but good can come from the frank and open discussion of the matter. If our present practice is wrong the sooner we correct it the better; if it is right—and we are sure that we are on the right track—the more widely it is known and practised by the profession the more lives shall we save, and with so much the more confidence shall we advise and practise these methods. I

venture to suggest that we may safely start with the following postulates:

1. *X* radiation as at present practised will relieve and sometimes cure certain cases of malignant disease.
2. The doses are now sufficiently standardized for us to understand *approximately* what we are giving.
3. In the light of this knowledge up to the present date we can rely on the opinion of the recognized authorities on the subject for a candid statement on what we should do in certain common and well-defined classes of cases. I assume, of course, that all have first received, if possible, suitable surgical treatment.

It is not surprising if all authorities are not agreed on the actual details of dosage for all conditions, for are there not many other therapeutic agents of much greater age in which no uniformity of dosage has or can be established? It is doubtful if this will ever be possible. The reaction of the tissues to a stimulus or reagent must differ in individual cases, whether that stimulus be *x* radiation or arsenic or any other of the therapeutic agents at our disposal. We should, however, be wrong for this reason to refuse to use them.

I cannot help feeling that a frank statement of what we are doing, how we do it, and the results we obtain in the prophylactic and curative treatment of cancer of the breast will do a great deal of good, will save these methods from unmerited disrepute, and will fortify us in continuing what we believe to be useful work. I refer to cancer of the breast because it is in this connexion that Mr. Sampson Handley initiated the discussion, because these cases form a very large proportion of those whom we treat, and lastly, because we are here dealing with a superficial organ in which the loss in penetrating the tissues is smaller than in the case of more deeply seated tumours. For some considerable time—at the instigation of Mr. Sampson Handley—I have been treating these cases in connexion with my general practice, because it was only by doing so myself that most of them were able to obtain the treatment.

The method which I use, wherever practicable, is that recommended by Dr. R. Knox on pp. 461–465 of vol. ii of his standard work on *Radiology and Radio-therapeutics*. I have also carefully watched the methods of treatment carried out under Dr. Salmond at University College Hospital, under Dr. Knox at King's College Hospital, and also, prior to his death, under the late Dr. G. R. Lyster, who was firmly convinced that in radiation lay the hope of the future for the cure of these cases.

Dr. R. Morton's letter of January 29th seems to me to do two things. First, it holds out, with some authority, a promise of a cure in the future; and, secondly, it casts an aspersion on our present methods.

The treatment we now give is with tubes having an equivalent spark gap of not more than 9 in., and by the use of aluminium filters of certainly not more than 6 mm.

It is agreed that the type of radiation necessary to deal with deeply-seated organs is a more penetrating one than that required in treating a superficial organ like the breast. Is it necessary in these cases to use a tube with an equivalent spark gap of 16 in.? At any rate, we do not at present possess them in this country. I write as a general practitioner determined to advise, and as far as possible give, the best treatment obtainable for this condition, and in doing so I believe I speak for a large number of practitioners who have the same object in view.

I appeal to the authorities on this subject to state their views on our present methods. We all wish to have our practice confirmed or condemned, or, better still, brought to perfection in this country as soon as possible, and we believe that by the careful thought and practice of British radiologists this object will be consummated.—I am, etc.,

Glastonbury, Feb. 7th. J. W. JAMES WILLCOX, M.B.Lond.

THE DROOPING SHOULDER SIGN OF PHTHISIS.

SIR,—I was much interested in the remarks by Dr. W. C. Rivers, in your issue of January 22nd, on the drooping shoulder sign of phthisis, but in stating that this sign is not mentioned in any British textbook Dr. Rivers is in error.

The appearances to which he refers are fully described on pages 65–66 in Dr. Halliday Sutherland's *Pulmonary Tuberculosis in General Practice* (Cassell and Co., 1916).—I am, etc.,

London, S.W., Jan. 26th. W. J. HOYTEN, M.D.

DEXTROSE IN CARDIAC FAILURE.

SIR,—I can corroborate Dr. Scott MacGregor's recommendation (January 29th, p. 158) to give sugar an extended trial in cases of cardiac failure.

In 1913 I published a case in the *Lancet* (vol. i, p. 1092) which is quoted in Martindale's *Extra Pharmacopoeia* (1915) as follows:

"Life saving by sugar: 8 oz. during twenty-four hours in a case of a woman of 77 with heart disease, where digitalis and digitalin had no effect. Continued some weeks in slightly less amount. Strength slowly regained."

I frequently put my bad heart cases in the Hull Royal Infirmary on sugar in some form—often dissolved lump sugar—as well as bad cases of pneumonia—with good results.

The members of the sugar group of carbohydrates form an easily assimilated food, which sustains and increases the power and endurance of all varieties of muscle fibres; and some form of sugar is always at hand in any household.—I am, etc.,

Hull, Feb. 3rd. STANLEY E. DENYER, C.M.G., M.D.Camb., F.R.C.S.Eng.

THE NAVAL MEDICAL SERVICE.

SIR,—In the JOURNAL of January 29th "Surgeon Commander R.N." passes, in a spirit of unctuous rectitude, rather severe strictures on his colleagues. That these charges are ill deserved, and, further, that they are not the cause of the present lamentable condition of the Naval Medical Service, we hope to make clear.

He states that a class of man is attracted to the service who is no use either in or out of the service. We frankly disbelieve this, as until recent years the competition to enter into this branch was about 2 to 1, the selected candidates being mostly highly trained, many of them prizemen, and many ex-house-surgeons and ex-house-physicians. There has been a great exodus of these good young men during the past two years, and if the Admiralty would only permit it, there would be a still further reduction. They are retained in the service, not by any hope of advancement—they have less than a 1 in 20 chance of promotion to surgeon captain—not by the prospect of a "life of leisure and retirement at age 50 with a nice pension of £600," but by the force of the Naval Discipline Act; those who wish to leave are not allowed to. Further, it is remarkable to how very few temporary surgeons, who saw the navy from within, these alluring prospects appealed, and now the Admiralty cannot even get as candidates those whom your correspondent refers to as "idlers and gamblers" and "of no use either in or out of the service."

He asks, What has the average naval surgeon done for the service? Our reply is that he has rendered loyal and honest service in return for emoluments much below the market rate. Contrary to "Surgeon Commander's" statement, the Health of the Navy returns show a progressive decline in the amount of preventable sickness. We have yet to learn of any naval medical scandals during the late war. The naval doctor does not work in the limelight, and the merest glance at the current *Navy List* will show the meagre list of humble O.B.E.'s with which officialdom has recognized his work.

In reply to the painful comparison with the R.A.M.C., we would say that so long as the combination of pay, allowances, and other pecuniary advantages exceeds ours, so long will a justifiable grievance remain, and so long will the other service have first choice of those candidates who wish to enter the "Services." If we must not reasonably compare ourselves with them, with whom, we ask, should we seek comparison?

One can remember the days when the R.A.M.C. did not stand on its present pinnacle of efficiency. It dates its swift rise to fame from the day that it began to "run its own show." There may be some hope for the Naval Medical Service when the Medical Director-General is allowed to become more than a mere figurehead, whose function it is to make occasional recommendations to the Board in whose unprofessional hands the real destinies of the Medical Branch at present lie.

The lack of clinical material in ships is admitted, but do the Admiralty try to obviate this defect by sending medical officers awaiting employment to naval hospitals where there is no lack of good cases, and much really good work

is done? No; they are put on unemployment pay instead. It is, we think, obvious that your correspondent can have had little experience of the work done in naval hospitals—work which compares favourably in quantity and quality with either that of the army or of civilian practice.

Your correspondent thinks that it is high time to put an end to grumbling, and recommends work in lieu, remarking that as the labourer is worthy of his hire so would we have gained the recognition, status, pay, and honours deserved. We might reasonably assume that when the medical officer, by much good service and careful selection, attains to the rank of surgeon rear admiral, he has already attained some distinction, and as such is entitled to generous treatment, but it is common knowledge that his emoluments are in no way adequate, without considerable private means, to enable him to live as he is generally expected to live. When an executive officer attains this high rank a benevolent Admiralty makes the possession of private means unnecessary by the provision of very handsome allowances. Few of us can afford to be so altruistic as to view these matters with the equanimity of your correspondent, nor do we consider that the rewards of our very senior officers are now such as to attract the best men. It is therefore frivolous to speak of the prominence we give to these grave inequalities in treatment of senior officers as "grumbling about status."

It is the merest truism to say that a medical officer's personal status is what he makes it. The medical officer who is his captain's personal friend and confidential adviser is the rule and not the exception, and in this way he does much good work for the service which your correspondent has overlooked. The differentiation in official status is sufficiently shown by the comparison quoted above.

So much for destructive criticism. Of constructive suggestions for improvement of the branch we know there is no lack.—We are, etc.,

Feb. 1st. TWELVE MEDICAL OFFICERS ROYAL NAVY.

SIR,—I cannot allow the attack on his own branch by one who signs himself "Surgeon Commander" to pass without a reply.

He asks, "What has the average naval surgeon done for the service?" In many cases during the late war he died for it. Possibly in this act your correspondent might admit that the naval medical officer "stood on his own merits." Your correspondent has apparently never read the *Naval Medical Journal*. Since its beginning in 1915 this journal has been a revelation of the extraordinarily good work that naval medical officers are doing both in preventive and other branches of medicine and surgery. In it there are many excellent articles written by men often in isolated ships on distant stations showing the resource and skill by which they extemporized apparatus for laboratory or other work on board ship. The journal alone is a complete refutation of your correspondent's ignorant charges. If naval medical officers had been such as he describes, there would never have been such a journal.

The health of the Grand Fleet during the war, and the records of the treatment of the sick and wounded all over the world, are a sufficient testimony that the naval doctor knew his duty and his job, and did both. There has never been a word of hostile criticism of the treatment of all those thousands of sick and wounded during the war.

To our poor branch that gets all the kicks and none of the halfpence this fact alone is ample justification. In his last paragraph your correspondent infers that the Naval Medical Service is *not* "a worthy unit of the great service to which we belong." To this I can only reply that if every other branch had been as well equipped and ready for war as the medical, the war would probably have been over considerably earlier.—I am, etc.,

January 31st. ANOTHER SURGEON COMMANDER.

⁂ We have received other letters to much the same effect.

AGE AND PENSIONS.

SIR,—Two propositions of the Pensions Ministry are having the effect of disfranchising very large numbers of old soldiers from pensions:

1. In disease disability, not due to but aggravated by service, the pension ceases when the "aggravation" is said to have "passed away."

2. Many disease disabilities of elderly soldiers are said to be "due to age" and not to service; such disabilities, being due to age, cannot be "aggravated by service," and in either case are ruled to be not pensionable.

The fallacy of these propositions requires demonstration. First, as to causation of disease disabilities, the originating causes of every disease are multiple; all diseases are the resultant of innumerable causes. Military service is itself a multiple cause. When a disease is said to be "attributable to" or "aggravated by" military service, the admission of this particular element of causation, by the Ministry's own rules entitles a soldier to pension for the full disability, whatever be its other contributing causes.

The disease or disability resulting from these multiple causes consists of two aspects, functional and organic: (*a*) a physiological defect of vital reaction to environment and strain; and (*b*) a pathological material change in the tissues. On the upward curve of life, while the *vis vivendi* is potent—up to the age of 35 or 40—recovery may be complete, the residual defect of vital reaction and the residual tissue change being inconsiderable; no appreciable "disability" remains. On the downward curve of life, when the *vis mortis immanentis* is increasingly potent—after 35 or 40—the residual defect, both in function and in tissue change, usually remains substantial, and cannot "pass away." They render the man increasingly liable to microbial invasions, and impair his general economic efficiency and his reactions to all strains.

The "physical picture" is quite unreliable in measuring the organic disease disabilities of elderly soldiers. By direction of the Ministry's assessors, disabilities are at present assessed by the medical boards mainly, often exclusively, on the "physical picture" recorded by the Board, although the *Manual* clearly directs that all the factors bearing upon the degree of disability are to be taken into account. Experience increasingly shows that in elderly pensioners with chronic disabilities a physical examination gives at best but a few bald positive or negative signs, "a picture" which cannot in itself measure that impairment of general function which constitutes the economic disability of the pensioner in earning his livelihood. The chronic disabilities from which these elderly pensioners suffer are, in the nature of the case, usually of long standing and more or less incurable, liable to more and more frequent recurrence and accentuation as years go on. The illness may "pass away" temporarily, but only in appearance, for each recurrence leaves an increased histological tissue change in the organs affected (not usually verifiable by a physical examination) and an increased tendency to recur. In men on the downward incline of life these consequences cannot in any true or lasting sense "pass away"; on the contrary, they are bound to get worse with time. The actual assessment of these chronic cases is difficult for the following reason:

They cannot justly be assessed by any abstract "comparison of the disabled man with an average healthy man of his age," as laid down by the Ministry. There is no such thing as "an average healthy man of 60"; the healthy men of 60 are a very minute fraction of the sum total of men of 60 surviving at all. There is no average standard of physical condition in elderly men of any age. Truly considered, they are merely the tougher constitutions surviving—and the toughest constitutions may be the most disabled—out of the far greater age-group of their year of birth.

The only standard of any value by which the economic disabilities of elderly men can be measured is the age factor, which has always been ignored or misunderstood or perverted by the Ministry. These disabilities are intimately bound up with the age factor, and the just assessment of elderly soldiers requires that an age factor should in all cases be added to the purely "physical comparison" assessment.

The distinction drawn between cases of disease disability directly attributable to service, and those assumed to have pre-existed before enlistment and to have been "only" aggravated by service, is in many instances artificial and hypothetical. Even when there is proof of pre-war disease, we have usually no evidence at all of the degree of disability on enlistment. When, therefore, after or on demobilization, a case is accepted as "aggravated by service," the pre-war part of the whole present disability has to be assessed by guesswork, several years after the date under assessment, the whole effect of military service intervening. These guesses obviously are variable and of very little value; the very basis of this disfranchisement

of these older soldiers has no true foundation either of record, of science, or of fact.

The only use the Ministry has made of the age factor is a perverse and unscientific one. In order to dispose finally of the whole age question it has laid down the following propositions:

1. "We are not here to assess disabilities attributable to age." "We are not distributing old-age pensions."
2. "Disabilities attributable to age cannot be attributable to service."
3. "Therefore the disabilities of a soldier attributable to or aggravated by age, are not pensionable."

But age is not in itself a *cause* of anything, so that it cannot either be a cause of disability or exclude any cause of disability, such as service, from acceptance. Age is an approximate measure of innumerable chronic disabilities, whose causes are the same multiple causes which produce the disabilities of all ages. As age advances the tissue changes resulting from disease causes in general (including military service as a cause) become accumulated, and the defect of vital reaction to environment becomes aggrandized, but age remains simply the measure of accumulation, not the cause of the accumulated organic and functional disability. Age in itself is a relative term, a mental concept; considered as a measure of time, a measure of man's life-span, it cannot *cause* disability. We speak of "age-disability" only as a convenient figure of speech, as a concurrent measure of accumulated disability. The perversion of this figure into the formula or belief that "age is a cause of disability" is muddleheaded and unscientific.

In practice the disabilities of older soldiers, though very real in economic effect (to compensate for which is the true purpose of disability pensions), are often difficult to define in the terms of disease. The truth is old age is a disability, which may be and usually is aggravated by service, and that aggravation cannot pass away. The assessing branch of the Ministry appears to have been overweighted by the difficult decisions required of it in the shortest space of time. Its incorrect premiss disfranchises elderly soldiers from the benefit of the Royal Warrant, which (correctly applied) was intended by Parliament to safeguard the interests of all soldiers, old or young, injured by their service in the army, and not least those who served in their old age.—I am, etc.,

January 28th. AETAS.

BRITISH AID FOR RUSSIAN MEN OF LETTERS AND SCIENCE.

SIR,—At the beginning of this year you published an appeal for funds to enable a certain number of scientific and literary publications to be sent to the House of Science and House of Literature in Petrograd, where the remnant of the intellectual life of Russia is mostly congregated. The British Committee for Aiding Men of Letters and Science in that country has assured itself that such publications will reach their destination, and has made arrangements for their transmission. There are probably many authors who would be willing to send copies of their works in the form of excerpts or otherwise to Russian workers who have been cut off from the outside world since the revolution. The British Committee will be glad to receive any such books or papers of a non-political type and to send them to Petrograd. It cannot guarantee delivery to individuals, but it can ensure that publications will reach the Houses of Literature and Science. Parcels for transmission should be addressed to us, care of Wm. Dawson and Sons, Ltd., Continental Department, Rolls Buildings, Fetter Lane, E.C.—I am, etc.,

L. F. SCHUSTER, Secretary.

British Science Guild Offices,
6, John Street, Adelphi, W.C.2,
January 26th.

BY the will of the late Mr. William Roper Teage of Dartmouth, who left net personalty of £78,487, the residue of his property is left to charitable institutions, including ten parts to the South Devon and East Cornwall Hospital; four parts each to the Dartmouth Cottage Hospital and King Edward's Hospital Fund; two parts each to Guy's Hospital, the London Hospital, and the Poplar Hospital; and one part each to the Middlesex Hospital, the Cancer Investigation Department of Middlesex Hospital, the Royal London Ophthalmic Hospital, and to three special hospitals in Plymouth.

Obituary.

F. H. DAYUS, M.R.C.S., L.R.C.P., Forest Gate.

DR. FREDERICK HERBERT DAYUS, Chairman of the West Ham Insurance Committee, died at Cumberland Lodge, Forest Gate, London, E., on January 26th. After studying at St. Mary's Hospital, he obtained the conjoint diploma in 1893. He was subsequently appointed resident casualty officer at St. Mary's Hospital, and served as resident medical officer to the London Fever Hospital. After a brief period of practice in the county of Durham, he established himself in West Ham, where he speedily obtained an extensive practice. He was always an enthusiastic supporter of the British Medical Association, never wearying of pointing out that it was the only possible organization for the profession. He joined the executive of the Stratford Division in 1907, and retained his seat thereafter. He was vice-chairman of the Division during the years 1911–12, while the National Insurance Act was under discussion, and was frequently called upon to preside over the large meetings which gathered during those troubled times. He was a member of the West Ham Panel Committee since its formation, and its first chairman. He was elected by the practitioners of West Ham as their first representative on the West Ham Insurance Committee, and his annual re-election became a matter of course. He served as chairman of the Sanatorium Benefit Subcommittee, and was a member of the Medical Benefit Subcommittee from the beginning. In 1920, having served a year as vice-chairman, he was unanimously elected chairman of the West Ham Insurance Committee, and this office he held at the time of his death. He thus shared with Dr. Dain of Birmingham the distinction of being one of the two medical chairmen of Insurance Committees. In this office he excelled; his knowledge of men, his tactful and conciliatory bearing, and the firmness and decision of his rulings made him almost ideal, and his assiduous attendance at subcommittees kept him fully conversant with all the committee business. Dr. Dayus was also a member of the local War Pensions Committee, and honorary medical adviser to the Stratford Day Nursery and to the Mothers Welcome of the Trinity Oxford City Mission.

Early in life he became a Freemason, and entering into it with his characteristic zeal, he rose to high office. In the midst of these multitudinous activities his advice and assistance were always at the disposal of those that sought them; no call upon him was ever made in vain, and his death at the early age of 52, in the full tide of his career, adds one more to the long line of medical men who have paid for their devotion to the public with their lives. The funeral service, which took place at West Ham Parish Church, within a few yards of the place where he had carried on his life's work, was the occasion of a remarkable demonstration of feeling. The large building was completely filled by a gathering fully representative of all the numerous bodies with which he was connected, together with friends and patients, but far more impressive was the scene outside, where thousands of people packed the streets and waited patiently in a dreary drizzle throughout the service to see the last of him who had served them so well.

WE regret to announce that Mr. HENRY BARTON OWENS, M.R.C.S.Eng., L.R.C.P.Lond., of Paulerspury, Towcester, Northants, died on January 15th, after a week's illness, of acute septicaemia, in his 32nd year. Born at Long Stratton, Norfolk, he was the second son of Charles A. O. Owens, M.D., J.P., who has practised there for nearly fifty years. On leaving the London Hospital he became house-surgeon at Poplar Hospital. At the outbreak of the war he obtained a temporary commission in the R.A.M.C., dated August 8th, 1914, and was posted to the 3rd Cavalry Field Ambulance at the Curragh. He went overseas with the first expeditionary force in the 1st Cavalry Division, and was very soon attached to the 4th (Royal Irish) Dragoon Guards. Among the many battles he was engaged in were the retreat from Mons, Le Cateau, Marne, Aisne, Ypres, Somme, Ancre, and in the final advance. He was a long time with the 57th Field Ambulance, 19th Division, taking his turn as medical officer to several battalions, including the Loyal North

Lancashires and also the Royal Engineers. He was twice mentioned in dispatches. His name appears in Colonel Brereton's book, *The R.A.M.C. in the Great War*. One of his comrades with whom he was closely connected during the war writes: "Many a time have I been cheered by his company and courage in France, where his gallantry and devotion to duty were so inadequately rewarded, though fully appreciated by his real friends." He was a keen sportsman, never happier than when following hounds, and was well known as riding true and straight with several packs in Norfolk and co. Tipperary. He was gifted with a facile pencil, many of his sketches and water colours done in France during the war possessing additional interest in the fact that some of the places represented no longer exist. He married, in July, 1920, Winifred Mary, daughter of the late Henry Mandeville, R.N., of Anner Castle, Clonmel, co. Tipperary. In October he commenced practice at Paulerspury, where he died.

WE regret to announce the death of Dr. PATRICK CHARLES GORHAM, of Clifden, Connemara, who for nearly fifty years had been connected with the medical life of West Galway. Dr. Gorham was educated at Queen's College, Galway, and at Dublin and Edinburgh, qualifying L.R.C.P., L.R.C.S. Edin. in 1874. He was for forty years medical officer of health of Roundstone and Clifden districts, and medical officer to the Clifden workhouse and fever hospital, but failing health caused him a few years ago to accept superannuation. A colleague writes: For a considerable time it was known that Dr. Gorham was in failing health, but when the news came that he had passed away the expressions of regret and sorrow were many, and the funeral cortège was the largest seen in Connemara in living memory. Those who were admitted to his friendship, and his poor patients in particular, held for him an especial regard and love. Among the visitors who made Connemara their headquarters for fishing, shooting, and other sports, Dr. Gorham was a special favourite, and he numbered among his friends Lord Randolph Churchill, Mr. George Wyndham, and a host of other well known people. When the Poor Law Association wished to promote a measure of superannuation for the Poor Law officers of all grades, they availed themselves of his friendship with Mr. Wyndham by constituting Dr. Gorham their chief spokesman, with the result that the Chief Secretary undertook to forward their interest, but owing to political opposition he was compelled to abandon their case. Dr. "Pat" Gorham in his love for his poor patients and striking example of devotion in the pursuit of his duty has left to his colleagues in the Poor Law medical service an example and an inspiration. In his family of six brothers, of whom two now survive, four selected medicine as their profession.

WE regret to record the death of Dr. PHILIP G. NUNN, at Bournemouth, on January 10th, in his seventy-third year. He received his medical education at St. Bartholomew's Hospital, and took the diplomas of M.R.C.S. in 1871 and L.R.C.P. in 1873. In 1874 he was appointed medical officer of health for Bournemouth, and he continued to hold that post, with the exception of about four years, till he retired in 1911, when he was appointed consulting medical officer of health. During this period the population of Bournemouth rose from 7,000 to over 80,000. Dr. Nunn was consulting surgeon to the Royal Boscombe Hospital and an ex-president of the Dorset and West Hants Branch of the British Medical Association.

DR. EDMUND J. SPITTA, who died on January 21st, aged 68, received his medical education at St. George's, St. Thomas's and Westminster Hospitals, and obtained the diplomas of L.R.C.P. and M.R.C.S.Eng. in 1874. He was prizeman in anatomy at St. George's Hospital Medical School and held the post of senior demonstrator in anatomy. He joined his father in practice at Clapham in 1874, and retired in 1904, when he removed to Hove. In 1899 he brought out his book on *Photomicrography*, and that on *Microscopy* in 1907. At the request of the British Government he showed, in conjunction with his son, Dr. Harold Spitta, M.V.O., Bacteriologist to the Household of H.M. Queen Alexandra, a series of photomicroscopical exhibits at the Paris International Exhibition in 1900, when he was awarded the Grand Prix. He was also awarded a gold medal for his exhibits at the exhibition at St. Louis in 1902. On retiring from practice he devoted himself to research work in microscopy and photography, and was the first scientist to produce cinematograph pictures of plants and insect life. Dr. Spitta was a Fellow and Vice-President of the Royal Microscopical Society and was President of the Quekett Microscopical Club in 1904–8. In recent years he was greatly interested in wireless telegraphy, and at the time of his death was engaged on experiments in wireless telephony.

THE death has occurred, at the early age of 25, of Dr. ROBERT DAVID JONES of Penrhyndeudraeth, Merioneth, as the result of a railway accident. He was the son of Dr. J. R. Jones of Penhryndeudraeth, and received his medical education at the University of Liverpool and St. Bartholomew's Hospital. He was awarded the Torr gold medal in anatomy at the University of Liverpool in 1914–15, qualifying M.R.C.S., L.R.C.P. in 1918. He had been senior house-surgeon at St. Bartholomew's Hospital, and had served as captain in the Royal Air Force Medical Service. Dr. Jones only returned a few days before from a short trip to India.

WE regret to record the death of Dr. GEORGE NISBET, of Quinton House, Kirkby-in-Ashfield, Notts, which took place, after a long illness, on January 16th. Dr. Nisbet received his medical education at Edinburgh University, and qualified in 1904. A well known and popular practitioner, he took a great interest in the work of the British Medical Association, and acted as local secretary in the Kirkby district of Nottinghamshire.

Medico-Legal.

ACTION AGAINST A MEDICAL OFFICER OF HEALTH.

IN the JOURNAL of July 31st, 1920, p. 188, an account was given of the action for damages for libel brought by Mrs. Mabel Copeland against Dr. Thomas Orr, the medical officer of health of the borough of Ealing. The case was heard in the King's Bench Division on July 15th before Mr. Justice Roche and a common jury. The plaintiff was a lady sanitary inspector in the service of the Ealing Town Council. The jury found £25 damages in favour of the plaintiff, but the judge postponed the entering of judgement pending legal argument. Four days later, in the same court, Mr. Hemmerde, K.C., counsel for the defendant, moved that judgement be entered for the defendant on the ground that there was no evidence of malice. Mr. Justice Roche, in the course of an argument by counsel on both sides, used the following words: "It is not for me to set the jury's verdict aside as being an unreasonable verdict, but I am entitled to say that I am very dissatisfied with it. It is difficult, however, to say that there was no evidence which could be submitted to the jury." Judgement was therefore entered for the plaintiff for £25, and the defendant entered an appeal.

In the Court of Appeal, on February 2nd, before Lords Justices Bankes, Warrington, and Atkin, Dr. Orr's appeal was heard. An account of the hearing was printed in the *Middlesex County Times* of February 5th. According to this report, Dr. Orr appealed on the two grounds that the judge was wrong in not withdrawing the case from the jury, because there was no evidence of malice to go to them, and, alternatively, that even if there was evidence of malice the verdict was against the weight of the evidence. Mr. Bell Hart, instructed by the Town Clerk of Ealing, said that Dr. Orr took up his duties as medical officer in August, 1915, and the respondent's case was that from the first he adopted a harsh attitude towards her, often complaining of her work and requesting her to be more methodical and to conform to certain new regulations he had made; her health thereby became affected. It was not suggested that Dr. Orr made any sort of report detrimental to the plaintiff before April 10th, 1917, but on that date he was asked by the council to report on her work, and in response he spoke the words which the respondent maintained were slanderous. Counsel then went into the detailed evidence given at the trial, and in support of the appeal he laid stress on the fact that Mr. Justice Roche had himself expressed dissatisfaction with the verdict.

Lord Justice Bankes, giving judgement, said the amount of damages awarded was very small, but the principle underlying the verdict was very important, because were the verdict allowed to stand the impression might be produced that if any person did not get on well with a superior officer, and was necessarily taken to task by that officer for not performing his or her duties to the officer's satisfaction, and if, further, the officer felt compelled to make a report on the matter, the evidence was to be taken as evidence that he had acted maliciously in making the report. In this case there was really no evidence fit to be submitted to the jury that Dr. Orr acted maliciously on what was admitted to be a privileged occasion, or that he had been

animated by ill-will at all. After referring to the relations between Dr. Orr and Mrs. Copeland, his Lordship said it appeared to him that so far from the doctor having shown malice, he was forbearing and was anxious to take a step which might not do the lady harm. Referring to a letter sent by the respondent's sister to Dr. Orr, his Lordship said it raised a grave matter, because it suggested that, owing to the doctor's attitude, the respondent had so suffered in health that she could not perform her duties. It was incumbent upon the doctor when he received that letter to bring the matter before his superiors, and he did so on April 30th. That was not done voluntarily, but he was forced into it; and it was not evidence of malice or of anything but acting under a pure sense of duty. In his Lordship's opinion the appeal must be allowed, the judgement below set aside, and judgement entered for the appellant (Dr. Orr) with costs in the Court of Appeal and below. Lords Justices Warrington and Atkin concurred; the latter added that in his opinion everything that took place was consistent with the appellant doing his duty. Even if there had been any feeling of hostility before the report was communicated it did not justify the finding of express malice.

The appeal was accordingly allowed, the judgement below set aside, and judgement entered for Dr. Orr, with costs of the trial and appeal.

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on January 19th. The Prince of Wales has consented to accept the honorary degrees of Master of Commerce and Doctor of Science, which will be conferred on Presentation Day in May.

The Senate expressed gratification at the anonymous donation of £20,000 made to the Middlesex Hospital Medical School for the endowment there of the University Chair of Physiology. It was resolved to institute a University Chair of Embryology at University College and a University Chair of Physics at Bedford College. Applications for the latter post (£800 per annum) to be sent to the Academic Registrar by April 16th.

It was resolved that the regulations for the M.D. examination (Branch III, Mental Diseases and Psychology, Red Book 1920–21, p. 264, and Blue Book 1920, p. 247) be amended by the addition of the following at the end of Branch III:

In and after the examination to be held in December, 1922, the Regulations for Branch III will be as follows:

Branch III—Psychological Medicine.—Two papers in Mental Diseases and Mental Deficiency. One paper in Psychology. One paper in Neurology, which shall include the anatomy and physiology of the nervous system. An essay on one of two subjects in mental diseases or a case for commentary in mental diseases. A clinical examination.

The necessary consequential changes in the title of the M.D. examination (Branch III) are to be made in the regulations.

Sir James Barr has been reappointed Chancellor's representative on the Court of the University of Liverpool, and Dr. Russell Wells has been reappointed the representative of the University on the General Medical Council.

The University Medal in Branch VI (Tropical Medicine) of the M.D. examination, December, 1920, has been awarded to E. S. Phipson (University of Birmingham), and the University Medal in Branch I (Surgery) of the M.S. examination, December, 1920, to R. L. Horton (University College Hospital).

Applications for grants from the Dixon Fund for assisting scientific investigations must be received by the Senate between April 1st and May 15th, 1921. Applications for the University studentship in physiology must be received by the Principal Officer by May 31st. The studentship (value of £50 for one year) is tenable in a physiological laboratory of the University or a school thereof. Full regulations as to award can be obtained on application.

Essays and dissertations on hyperthyroidism and its surgical treatment, for the Rogers Prize (value £100), must reach the Vice-Chancellor by April 30th. It is open to all persons whose names appear on the *Medical Register*.

Applications for the University chair of anatomy, tenable at St. Bartholomew's Hospital Medical School (salary £900 per annum), must be received by the Academic Registrar at the University by April 14th.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examinations indicated:

D.P.H.—W. J. Fordham, G. G. Marshall.
THIRD M.B., CH.B.—Annie D. Sykes.

UNIVERSITY OF BIRMINGHAM.

THE Council of the University, in its report to be presented to the forthcoming meeting of the Court of Governors, states that so far the response to the university's appeal for £500,000 has reached £280,444, of which £135,417 has been specially allocated by the donors, leaving £145,027 for general purposes.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary Comitia of the Royal College of Physicians of London was held on February 3rd, when the President, Sir Norman Moore, was in the chair.

Licences to practise physic were granted to the following eighty-three candidates who had passed the necessary examinations:

*Doris E. Alcock, H. E. Alexander, G. W. Almeyda, C. H. Andrewes, H. N. Andrews, *Kathleen Ardell, O. A. Baker, W. E. Barnes, H. E. Beasley, *Margaret G. Best, L. M. Billingham, I. Blain, C. H. Bracewell, J. L. McK. Brown, R. Buddle, C. L. C. Burns, A. Y. Cantin, *Dorothy S. Chamberlain, L. C. F. Chevens, F. Christian, *Ivy Collier, F. P. de Caux, A. H. G. Down, A. G. Duncan, T. A. Eccles, R. T. Edwards, H. Franklyn, O. P. Gallegos, G. I. Griffiths, W. R. W. Haight, H. W. Hammond, *Katharine M. Harbord, H. J. H. Hendley, T. B. Hodgson, S. H. G. Humfrey, A. Y. Ibrahim, J. G. Johnstone, H. C. V. Joy, A. N. Kingsbury, F. G. Latham, *Anna G. M. Lewis, C. J. Lewis, C. A. Lindup, *Kathleen M. B. McArthur, H. McKenzie, *Elizabeth Matthai, A. Mikhail, G. S. Mitchell, W. P. Newman, *Helen O'Brien, F. R. Oliver, S. Orchard, T. L. Ormerod, *Tressila L. Pires, *Olive G. Potter, C. S. C. Prance, I. M. Rattray, P. L. Richardson, O. A. L. Roberts, A. el R. Roushdy, G. R. A. de M. Rudolf, H. L. Sackett, A. el R. Sami, *Maud Sanderson, R. G. V. Shaw, N. L. Sheorey, E. A. Sparks, H. Spibey, J. A. Stevens, R. N. L. Symes, A. H. Talaat, K. H. Tallerman, H. E. Thomas, J. S. Thomas, N. G. Thomson, H. M. Toop, G. D. C. Tracy, T. W. Turner, *Madeline H. J. Umpleby, Gladys M. Wauhope, *May G. Williams, H. N. Witham, F. W. Zaglama.

*Under the Medical Act, 1876.

A letter was received from the Voluntary Hospital Committee appointed by the Ministry of Health, with Lord Cave as chairman, to inquire into the financial position of the voluntary hospitals, inviting the College to present evidence. A reply was drafted pointing out the importance of the voluntary principle in relation to the interests of the sick, medical education, and the increase of knowledge. The President and Censors were appointed as representatives of the College if evidence were desired on these points.

A report from the Committee of Management on the Conjoint Examination in Midwifery and Diseases of Women was discussed and referred back for further recommendations.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Arris and Gale Lectures.

AN Arris and Gale Lecture, on the function of the kidneys in enlargement of the prostate gland, will be delivered in the theatre of the College, Lincoln's Inn Fields, W.C., on Friday, February 18th, at 5 p.m., by Mr. J. F. Dobson, M.S., F.R.C.S.

An Arris and Gale Lecture, on the azygos system of veins in their association with surgical affections, will be delivered in the theatre on Monday, February 21st, at 5 p.m., by Professor J. Howell Evans, M.D., M.Ch., F.R.C.S.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

Parkin Prize.

IN terms of the bequest made to the College by the late Dr. John Parkin, a prize, value £100, is offered for the best essay on certain subjects connected with medicine. The subject of the essay for the present period is, in terms of the deed—

"On the effects of volcanic action in the production of epidemic diseases in the animal and in the vegetable creation, and in the production of hurricanes and abnormal atmospherical vicissitudes."

The prize is open to competitors of all nations. Essays intended for competition, which must be written in the English language, must be received by the Secretary not later than December 31st, 1921. Each essay must bear a motto, and be accompanied by a sealed envelope bearing the same motto outside, and the author's name inside. The successful candidate must publish his essay at his own expense, and present a printed copy of it to the College within three months after the adjudication of the prize.

The Services.

BIRMINGHAM TERRITORIAL DINNER.

THE annual supper and smoking concert of the Royal Army Medical Corps (Territorial Units) of Birmingham was held at the White Horse Hotel on January 28th, with Lieut.-Colonel C. H. Howkins, C.B.E., D.S.O., T.D., in the chair. The A.D.M.S. of the Division, Colonel L. J. Blandford, A.M.S., C.B.E., T.D., was present, and the chairman was supported by Lieut.-Colonel R. A. Broderick, D.S.O., M.C., and Lieut.-Colonel H. F. W. Boeddicker, R.A.M.C.T.F.

The Chairman in a short speech said the great strides that had been made in recruiting for the units since the New Year and the indication there was that these units would shortly be at full peace strength. He also pointed out that the difficulties in regard to the establishment and enlistment of transport personnel having been settled, this important branch of the field ambulances should soon be in full swing. Lieut.-Colonel Broderick remarked on the great hopes there were of acquiring the use of a suitable drill hall at Sutton Coldfield, thereby creating in that district a section of the 2nd Field Ambulance, as obtained in pre-war days. Colonel Blandford expressed his appreciation of the progress made by the units in recruiting, and hoped that the social side of the Territorial Army would be kept up to the old traditions. It was a generally accepted fact that the transport sections would be just the same as in pre-war days, except that "R.A.S.C." would be substituted for "R.A.M.C." in the shoulder titles of the personnel. Major L. Ball, M.C., on behalf of Lieut.-Colonel Boeddicker, expressed his pleasure in being able to announce that a band was

in progress of formation for these units. This would no doubt be a splendid means of providing congenial entertainment for the members, both at headquarters and in camp, and would also prove a big incentive to recruiting.

About 100 members were present, and a strong programme was provided, which was thoroughly appreciated by all present.

HONOURS.

FOREIGN DECORATIONS.

THE following decorations have been conferred by the King of the Belgians for distinguished services rendered during the course of the campaign:

Ordre de Leopold.—Chevalier: Lieut.-Colonel Robert Tilbury Brown, C.M.G., D.S.O., R.A.M.C.; Lieut.-Colonel Edmund Philip Hewitt, R.A.M.C.

Ordre de la Couronne.—Officier: Colonel William Coates, C.B.E., V.D., R.A.M.C.(T.F.). *Chevalier:* Lieut.-Colonel James Fitzgerald Martin, C.M.G., C.B.E., R.A.M.C.; late temporary Captain George Arthur Skinner, R.A.M.C.

Croix de Guerre.—Lieut.-General Sir T. H. John C. Goodwin, K.C.B., C.M.G., D.S.O., K.H.S.; temporary Major Harry Compton Parsons, T.D., R.A.M.C.T.F. (honorary Lieut.-Colonel N.Z.M.C. Reserve of Officers); Brevet Colonel Sir Edward S. Worthington, K.C.V.O., C.B., C.M.G., R.A.M.C.; Brevet Lieut.-Colonel Andrew Rae Wright, D.S.O., R.A.M.C.

DEATHS IN THE SERVICES.

COLONEL MATTHEW DANIEL O'CONNELL, A.M.S.(ret.), died at Leeds on January 22nd, aged 73. He was born at Cork on April 5th, 1847, educated at Queen's College, Cork, and graduated M.D. and M.Ch. in the Queen's University, Ireland, in 1869. Entering the army as assistant surgeon on April 1st, 1871, he became colonel on April 10th, 1901, and retired on April 5th, 1907. He served on the North-West Frontier of India in the campaign of 1897-98, receiving the medal with a clasp. He was the author of a work on *Climate and Ague*, 1909.

Lieut.-Colonel Thomas Henry Delany, Indian Medical Service (retired), died on October 10th, 1920, aged 50. He was educated at the Catholic University, Dublin, graduating M.B., B.Ch., and B.A.O. of the Royal University of Ireland in 1893 and M.D. in 1905. He also took the F.R.C.S.Ire. in 1906. He entered the I.M.S. on January 28th, 1898, became lieutenant-colonel in 1917, and retired on January 29th, 1918. He served in the China war of 1900, and received the medal; for most of his service he was employed as a civil surgeon in Bengal.

Major Richard Rutherford, R.A.M.C., died at Cheltenham on January 12th. He was the son of the late Richard Rutherford, F.R.C.V.S., was educated at Edinburgh, where he graduated as M.B. and Ch.B. in 1901, and entered the R.A.M.C. as lieutenant on September 1st, 1902, becoming major on March 1st, 1914. He served in France in the recent war, and received the 1914 star and the medals.

Medical News.

DR. ALEXANDER F. R. WOLLASTON, who was lately elected to a Fellowship at King's College, Cambridge, has been chosen as medical officer of the forthcoming Mount Everest Expedition. Dr. Wollaston was awarded the Gill Memorial Prize by the Royal Geographical Society in 1914 in recognition of his explorations in the Sudan, Ruwenzori, the Pacific, and Dutch New Guinea.

A REUNION dinner of the staff (medical officers, sisters, and V.A.D.'s) of No. 14 General Hospital (Wimereux) will be held at the Ladies' V.A.D. Club, 28, Cavendish Square, London, W., at 7.30 p.m., on Wednesday, March 16th. Lieut.-General Sir John Goodwin, K.C.B., Director-General A.M.S., will preside. Applications for tickets, price 15s. inclusive, should be made, together with remittance (postal orders, crossed "Holt and Co."), to Miss Sloggett, 6, Bickenhall Mansions, London, W.1.

AS there is reason to believe that numbers of imported thermometers are being offered for sale in this country without having been officially tested, the Board of Trade point out that, under the provisions of the Clinical Thermometers Order, 1918, no person may sell, offer for sale, supply or deliver any clinical thermometers which have not been tested, approved, and marked at the National Physical Laboratory. Purchasers should, in their own interests, see that any thermometers offered to them bear the official test mark—namely, a monogram formed with the capital letters N.P.L., followed by two figures denoting the year of test. The above requirements apply to foreign thermometers imported into this country equally with those of British manufacture, but clinical thermometers exported from the United Kingdom need not at present be tested and marked.

A SPECIAL council of governors of the Great Northern Central Hospital will be held on February 16th to consider and, if thought fit, to pass a resolution approving and giving effect to the recommendation of the Committee of Management for the absorption of the Royal Chest Hospital, City Road.

THE joint meeting of the Röntgen Society with the Institution of Electrical Engineers and the Electro-Therapeutic Section of the Royal Society of Medicine has been postponed until next autumn.

AT the next meeting of the Medico-Psychological Association of Great Britain and Ireland to be held on Thursday, February 24th, 1921, at 11, Chandos Street, Cavendish Square, W.1, at 2.45 p.m., Sir Frederick Mott will read, in conjunction with Dr. Hayao, a paper on the pathology of dementia praecox, especially in relation to the condition of the ovaries.

A MEETING of the Society of Superintendents of Tuberculosis Institutions will be held at 122, Harley Street, at 4 p.m., on Monday, February 14th, when the main business will be the consideration of committee reports on the co-ordination of institution statistics, the training of nurses, and the standards of medical and nursing staffs.

AT a meeting of the Harveian Society on Thursday, February 17th, at 8.30 p.m., in the Town Hall, Harrow Road, Paddington, Dr. William Brown will read a paper on psycho-analysis.

THE different aspects of Einstein's theory of relativity will be described in a series of articles to be published in the special issue of *Nature* on February 17th. The contributions will form an authoritative scientific statement on relativity from various points of view.

COLONEL S. LYLE CUMMINS has vacated the post of Professor of Pathology at the Royal Army Medical College, London, and has assumed duty as Professor of Tuberculosis at University College, Cardiff.

MEMBERS of the Board of Management, the medical staff, and the governors and subscribers of St. Mary's Hospital recently made a presentation—in the form of a cheque—to Mr. Thomas Ryan on his retirement from the secretaryship of the hospital after a tenure of office of more than thirty-three years.

IN a paper read before the Society of Public Analysts on February 2nd Mr. F. W. Smith, B.Sc., stated that after much practical experiment with preparations of various types of squill, the most effective squill rat poison was found to be that prepared in water from an alcoholic extract of the fresh bulb of the red squill (*Scilla maritima*). Salicylic acid could be used as a preservative of this preparation without fear of hydrolyzing the glucoside.

AN institute of biology named after Ramon y Cajal has been established at Madrid. It is to consist of four sections devoted to human and comparative histology, neurology, physiology, and experimental pathology respectively.

SOME months ago Viscount and Viscountess Cowdray presented 20, Cavendish Square, formerly occupied by Mr. Asquith, to the College of Nursing for its headquarters and for a residential club for members of the college. It has been decided that the house shall be exclusively used as a club, but that the garden, having a frontage to Henrietta Street, shall be utilized as a site for the college; to give effect to this Viscountess Cowdray has increased the gift to a total of £100,000. The club-house, it is expected, will be ready by midsummer, but the erection of the college, which will contain offices, classrooms, and fifty bedrooms, will be deferred until building operations become cheaper.

MR. CHARLES J. HEATH, F.R.C.S., has been elected a Companion of the Institute of Marine Engineers.

LIEUT.-COLONEL WILLIAM SCATTERTY, R.A.M.C.(R.), has been appointed a Knight of Grace in the Order of St. John of Jerusalem, and Lieut.-Colonel Frederick S. Lambert, R.A.M.C.(T.F.), an Esquire.

THE second congress of the Italian Society of the History of Medical and Natural Sciences will be held at Bologna in October, 1921, under the presidency of Professor Domenicho Maiocchi, when Professor Maiocchi will read a paper on prehistoric surgery, and Professor D. Barduzzi one on the teaching of clinical medicine in the Middle Ages.

DR. DEPIERRIS, Secretary of the Société Française d'Oto-rhino-laryngologie and an authority on hydrology, has recently died at Cauterets at the age of 65.

MESSRS. GEORGE AND HENRY WILLS, who contributed large sums towards founding the University of Bristol, have given a further £200,000 to complete the building extension to the university which is being erected at their expense in memory of their father, the late Mr. H. O. Wills, the founder.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

BRASS FEVER.

"X. X.," who practises in an industrial district of Scotland, writes: In the foundry of a works with which I am connected the men suffer from a condition called by them "brass fever." Some suffer more than others, but there does not seem to be any natural or acquired immunity. It is presumably due to the fumes arising from the molten alloys. The symptoms are headache, shivering and sensation of cold all over, followed by a feeling of great heat and, after a variable time, by heavy sweats. There is then a feeling of exhaustion and "soreness all over." At the end of twenty-four to forty-eight hours convalescence is established and the man resumes work, although feeling "limp." I should be much obliged if you could refer me to any literature or other source of information on the subject.

*** The malady in question is well known as occurring among the brass pourers in Birmingham. There it is spoken of as "brass founder's ague," a misnomer, for it has no connexion with ague. The malady affects principally newcomers, or men who have been off work for a few days. It only lasts for a few hours, but during that period it is disconcerting. A short account of the illness is to be found in Sir Thomas Oliver's *Diseases of Occupation*, published by Methuen and Co.

INCOME TAX.

"F. L. O." was rightly assessed for two months' profit in 1919 on his own account, and subsequently was in partnership in the same year, but in another place for three months. During that three months his professional expenses exceeded his takings. This is admitted by the taxing authorities, but they do not agree to setting off that loss against the previous profit.

*** Section 34 of the Income Tax Act, 1918, provides *inter alia* that "where any person sustains a loss in any . . . profession . . . carried on by him in partnership . . . he may, upon giving notice in writing to the inspector within six months after the end of the year of assessment . . . apply for an adjustment of his liability by reference to the loss and to the aggregate amount of his income. . . ." We have been informed that the period of six months allowed for notice is by tacit concession extended to twelve months, and we suggest that our correspondent "apply" to the inspector and ask to be supplied with a copy of any form of declaration that may be required for a claim under Section 34, Income Tax Act, 1918.

TINNITUS AURIUM.

"M.B." writes from British Guiana, in regard to the query in the JOURNAL of November 6th, 1920, regarding the efficacy or otherwise of vaccine treatment in tinnitus aurium: I should be grateful, as a sufferer myself for some months, for any suggestion that might lead to permanent benefit. The only drug I have found to give definite, if temporary, relief, is quinine, the sulphate or the hydrochloride, but it produced arrhythmia of the heart, and was therefore stopped.

*** Some aural surgeons, we believe, prescribe dilute hydrobromic acid in fairly large doses—say 3j in water thrice daily.

DILATED PUPILS.

DR. W. B. INGLIS POLLOCK (Glasgow) writes in reply to "C. F. R.": I had a man of 29 years of age referred to me in November, 1905, with fully dilated pupils on both sides, of ten months' duration. He gave a history of a sore on the lip, followed by a sore throat, nine years previously. The eye condition was due to nuclear paralysis of the sphincter pupillae muscle, and also partial paralysis of the accommodation. He complained of double vision, but on investigation he was found to have polyopia, due to irregular peripheral astigmatism of the lens. He was ordered mercury and potassium iodide, to be continued for some years. With suitable glasses for distance and for near work the polyopia disappeared. He returned to see me at different times during the intervening years, until in April, 1920, his doctor informed me that he had developed general paralysis and had been sent to an asylum. I would advise "C. F. R." to put his patient on mercury and potassium iodide, even if the cerebro-spinal fluid is negative to the Wassermann test. If there is paralysis of accommodation she will require careful testing for suitable lenses.

LETTERS, NOTES, ETC.

A MEDICAL RESEARCH EXHIBIT.

AT the Efficiency Exhibition, now being held at Olympia from February 10th and 26th, the Middlesex Hospital Research Department have a stand showing some of the apparatus and methods of research employed in the ordinary work of a large hospital. In this exhibit are shown, for example, the stages that a piece of tissue goes through from the preliminary fixation in formol-saline to the finished section ready for microscopical examination, and at a bench some of the lay assistants of the research departments are seen carrying out routine laboratory methods. Various bacteriological, chemical, and histological processes are demonstrated, and other exhibits include an electro-cardiograph, *x*-ray apparatus and pictures recording drums, a telemicroscope and apparatus for microphotography. In connexion with this exhibit two series of short public lectures are being delivered in the Conference Hall. Dr. Tuck, lecturer on chemistry in the Middlesex Hospital Medical School, deals with chemical research as a foundation stone of medicine, of industrial health, and of pharmacology; and another series is given by Professor W. S. Lazarus-Barlow on fluorescence and ultra-violet rays, on *x* rays and their uses, and on radium and its rays. The exhibit and the lectures are designed to stimulate public interest in research generally, and in research as applied to medicine in particular.

SUPERNUMERARY NIPPLES.

DR. F. B. SKERRETT (Maidenhead) writes: During a recent medical inspection at a secondary school a well-formed boy of 15 years presented a pair of perfectly developed supernumerary nipples, complete with areolae, about 1½ in. vertically below the site of the normal nipples. He assured me his father has the same anomaly but that his sisters are free. In the course of over 52,000 examinations of school children during the past twelve years I do not remember to have met more than one other similar case. I therefore thought it worth recording on account of its rarity and biological significance. It would be interesting to know what happens to supernumerary nipples during adolescence and pregnancy when this condition is found in females.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, 38, 39, and 40 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 36 and 37.

THE following appointments of certifying factory surgeons are vacant: Kings Cliffe (Northampton), Marple (Stirling), Monmouth (Monmouth), Slamannan (Cheshire).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line...	0	1	6
Whole single column (three columns to page)	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.